EVOLUTION DOG WASH

PLC Owners/Operators Manual

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Notice

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Proprietary Material

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This document is for information purposes only and is subject to change without notice.

Statement of Limited Warranty

Warranty of the equipment will be for one (1)year after the purchase and delivery of the Goods. Warranty covers all parts, accrued; however, the warranty does not cover labor costs. The warranty does not cover theft, destructive acts, or gross neglect to the Goods. The manufacturer (or, designated representative of the manufacturer) has the rights to inspect the Goods to confirm that the damage is covered under the warranty. ***Warranty is considered voidable if Buyer does not use approved shampoo and disinfectant products (Tropiclean and KennelSol) throughout warranty period.***

No other warranty, expressd or implied, including any warranties of merchantability or fitness for a particular purpose is hereby made by Seller, and none shall be imputed or presumed.

Owners Manual
P/N: AUG15OM

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European Certification Document (CE Certified)

DECLARATION OF CONFORMITY

2006/42/EC Machinery Directive
2004/108/EC EMC Directive

Name of manufacturer or supplier
Evolution Dog Wash

Full postal address including country of origin
487 Fox Run Dr.
Carbondale
CO 81623

Description of product
Dog Wash equipment

Name, type or model, batch or serial number
220 VAC, 23 Amp FWL Single Phase + PE
Evolution PLC

Standards used, including number, title, issue date and other relative documents
EN953 +A1 (2009); EN12100 (2010); EN13732-1 (2008); EN55011 +A1 (2010); EN60204-1 +A1(2009)/AC 2010; EN60529 (2013); EN61000-4-2 (2009); EN61000-4-3 +A2 (2010); EN61000-4-4 (2012) and EN61310-1 (2008)

Name of Responsible Person within the EU Tracy Black

Full postal address if different from manufacturers
Interactive Partners, Ltd
Prioryhouse
Newbury Road
Kingscleare, Hampshire, RG20 5SR
+44 (0) 7884 111478

Declaration

I declare that as the Manufacturer, the above information in relation to the supply / manufacture of this product, is in conformity with the stated standards and other related documents following the provisions of the above Directives and their amendments.

Signature of Manufacturer: _____

Name (Print): _____

Position Held: _____

Date: _____

CE

1.0 ABOUT US

Evolution Dog Wash Company holds the dominant position in the self-serve dog wash industry. The Evolution Dog Wash is a quantum leap forward in the self serve dog wash industry, employing technology only used in the worlds most advanced Informational applications, each EVOLUTION system is built by hand with the specifications of each client. Since the dog wash system is manufactured in the United States, it can be shipped to your business quickly. Replacement parts and repairs can also be made fast.

While other dog wash companies claim to have great products and knowledge, Evolution Dog Wash Company is the only self-serve dog wash company whose sole mission is to provide the best quality dog wash and providing the most qualified and informed team of experts. While other companies offer a dog wash as part of their business, the sole purpose of Evolution Dog Wash Company is to provide the best self-serve dog wash in the world.

Evolution dog wash can also be used for other purposes, such as routine dog grooming or bathing other small animals.

1.1 Contact Information

Evolution Dog Wash Company
487 Fox Run Dr.
Carbondale, CO 81611
Owner: Gary Sherman
Phone: 800.426.0760
Cell: 970.930.5330
Web: www.EvolutionDogWash.com
Email: gary@evolutiondogwash.com

2.0 SAFETY AND CAUTION NOTES

The following icons may be used throughout this manual to alert of any possible danger or caution that should be observed or noted when installing, connecting or using this equipment. These warnings should be especially heeded while unloading and installing unit.

DANGER — **This unsafe practice will result in severe injury or death**. The use of the word **Danger** always signifies an immediate hazard with a high likelihood of severe personal injury or death if all personnel do not follow instructions and safety precautions.

WARNING — **This unsafe practice could result in severe injury or death**. The use of the word **Warning** signifies the presence of hazards or unsafe practices that could result in severe personal injury or death if all personnel do not follow instructions and safety precautions.

CAUTION — **This unsafe practice could result in minor injury or property damage**. The use of the word **Caution** signifies possible hazards or unsafe practices that could result in minor injury or damage to property or product if all personnel do not follow instructions and safety precautions.

This symbol alerts of possible electrical danger to the operator, installer, or maintenance personnel. When used, a explanation of the condition will be notated.

This symbol is used to point out any general caution that should be observed, when used, a explanation of the condition will be notated.

This symbol alerts of possible burn condition existing.

This symbol shows “lockout points for securing the machine before maintenance is performed.

2.1 Noise

Noise level recorded for this equipment was below 70 db(A).

2.2 Forseeable Misuse

Forseeable Misuse - (a) The equipment is not intended for underground use, or use in a potentially explosive atmosphere. (b) The equipment must not be climbed upon and only animals (e.g. dogs) may enter the wash area. (c) The equipment must only be used for the purpose in which it was designed and for no other purpose. (d) The equipment must be operated, cleaned and maintained as per the instructions provided. (e) If located outside, the equipment should be disconnected in the event of an Electrical storm. (E) Always read the User Manual for installation, commissioning, Maintenance, Cleaning and safe operational information.

2.3 Residual Risks

Residual Risks - (a) Electric Shock - Only trained and qualified Electrical engineers should attempt to maintain, repair and/or replace electrical components on this equipment, the relevant Electrical warning decals have been affixed in appropriate locations, (b) Hot surface - There are areas within the equipment enclosure that are classed as 'Hot Surface', these are appropriately marked with the European format decal for Hot surfaces, (c) Ensure that the MSDS Sheets are referenced if direct contact is made with any of the equipment 'products' (Detergent, Flea rinse etc).

3.0 INTRODUCTION

3.1 Principle of Operation

The Evolution Dog Wash is a fully self-contained machine designed for the wash and care of animals appropriate for bathing. The aircraft grade stainless steel cabinet is designed for indoor or outdoor use in a controlled or standalone configuration. The unit consists of currency acceptance in the form of coins, tokens, and notes. It also has the optional capabilities to accept credit cards. A timing device is used in conjunction with the currency or credit card acceptance to control the amount of wash time is provided to the unit. A selection control allows the user to select one of several functions to groom their animal. Shampoo, Flea and Tick Shampoo, Rinse, Conditioner, Low Blow, High Blow, and Disinfectant are the selections. A controlled wash area is included in the unit. A swing door allows larger animals to step into the compartment for washing. There are tether points in the unit that can be used to control and constrain the animal. A three part filtering system is provided to strain any animal hair from entering the sanitary sewer system. An operator switch is provided for maintenance and cleanup of the unit. The user places their animal into the unit's wash compartment and secures them. They then pay for their cycle using one of the methods described above. Once the turn on price is satisfied they began to wash their animals using the selections and the spray hose and nozzle of the unit. Once they have washed their animal then they can blow-dry them using the provided blower.

3.2 Specifications

Aircraft Grade Stainless Steel Construction
Self-Contained Cabinet for Interior or Exterior Operations
Triple Redundant Exterior Locking
Key Secured Separate Coin and Maintenance Area
Water Usage – 1.7>2.5 GPM (8-13G per wash)
Standard wash charge is recommended to be between $10 and $12, for 10 minutes of wash time for minimum startup.
Wash Cycle Cost is approx. $.90 - $1.20

3.3 Requirements

Water (Required)
- ½" Cold Water Line 20 – 60 PSI/2.0 GPM
- ½" Hot Water Line 20-60 /2.0 GPM

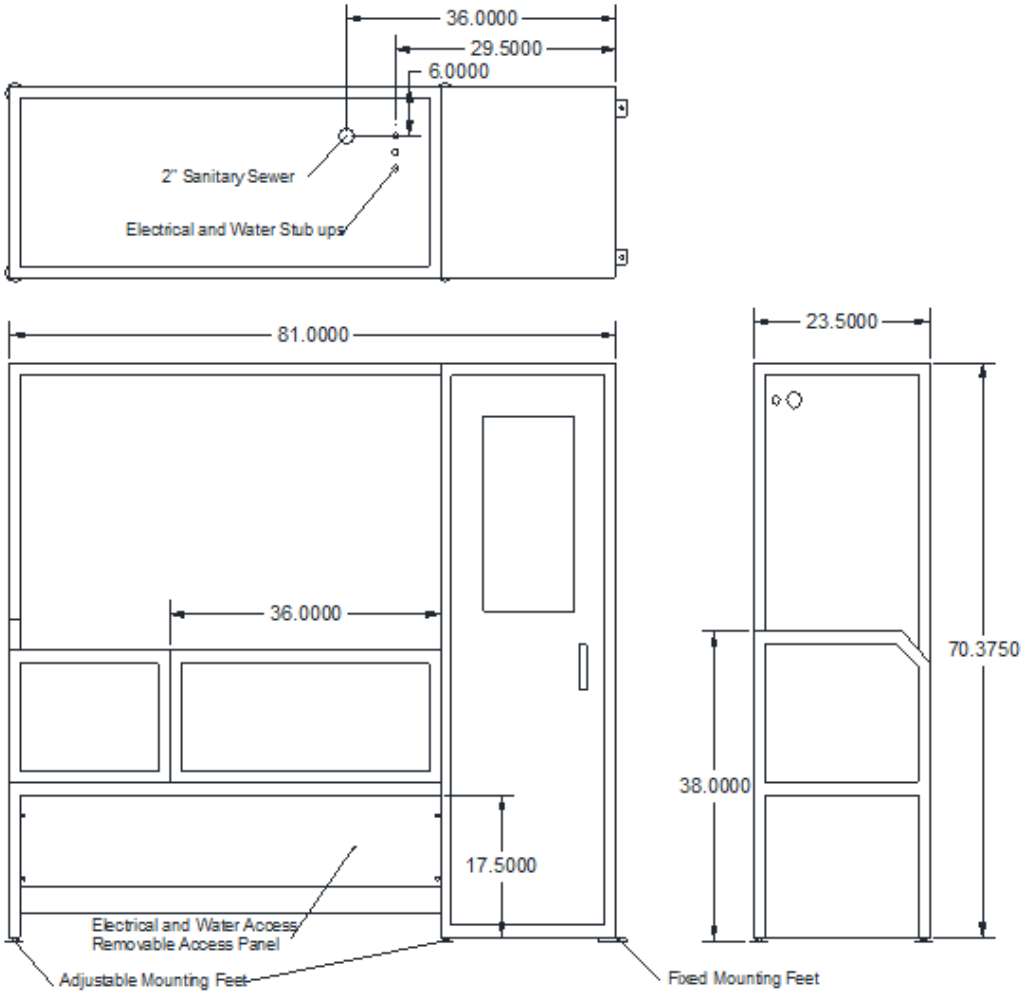
2" Sanitary Sewer Waste (Required)
120 Volts AC 30 Amps Hardwired Dedicated Circuit (Required)[1]

[1] This circuit is for the main power to the unit. An additional dedicated 110 Volt AC / 20 Amp circuit is required if

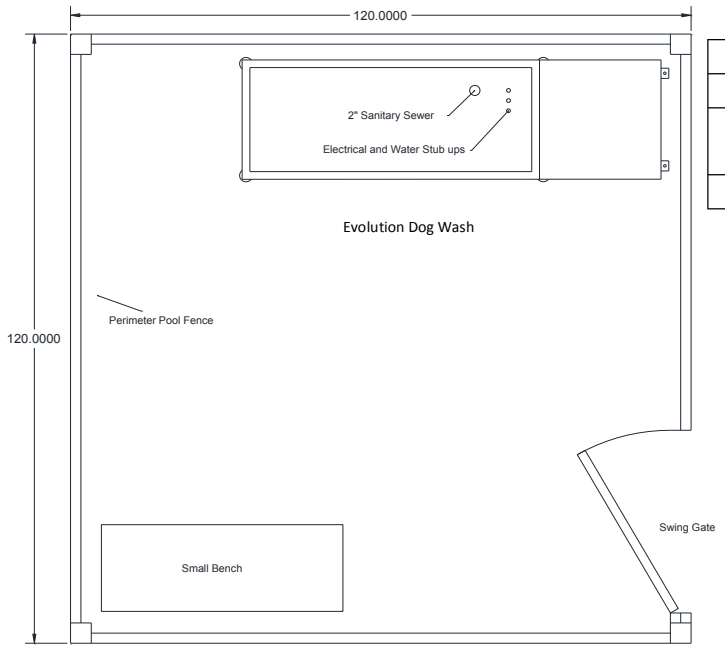
3.4 Dimensions and Weights

Length 81” / Height 70.375 / Depth 23.5”
Weight 750 Lb
Crated Weight 1000 Lb – 1050 Lb

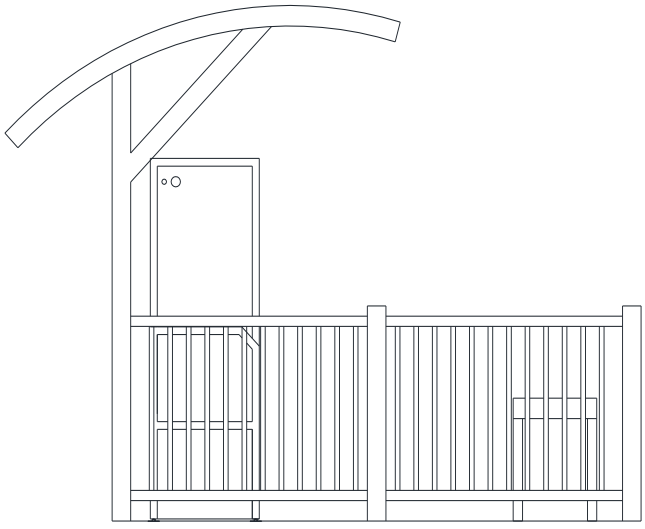
3.5 Drawings



3.6 Layout Suggestions



STANDARD SYSTEM REQUIREMENTS		
Main Power	110 VAC	30Amp 50/60Hz
Water 20-60 PSI / 2 GPM	Hot	½" Supply Line
	Cold	½" Supply Line
Sanitary Waste	2" Diameter Outlet	



4.0 INSTALLATION

DANGER

This unit should only be installed by a qualified installer and only after reading this manual. Installation requires electrical, plumbing, mechanical, and more, expertise. Lack of knowledge in performing any one of these requirements can cause serious bodily harm up to and including death.

DANGER

WARNING Risk of electrical shock! The EVOLUTION Dog Wash is powered with an electrical minimum of 110 Volts AC, 50/60 Hz / 30 amps. A dedicated 30 amp circuit[2] should be hard wired to the unit at the provided attach point inside the main cabinet. This connection should only be made by a qualified electrician. All local, national, or international codes should be followed as well at National Electrical Code (NEC). Branch circuit protection is provided on the unit meeting or exceeding UL1077 and/or UL489 ratings. This unit is supplied with a grounding source that should have its integrity maintained. To reduce the risk of shock, be certain that it is connected only to a properly grounded, grounding type buss with ratings conforming to NEC codes. Prior to any maintenance on the unit, lockout the unit from the electrical power and water sources at points provided on the equipment. *Failure to comply with the previous statement may void the EVOLUTION Doa Wash warranty.*

DANGER

Plumbing Precautions The EVOLUTION Dog wasn requires a minimum of 20 PSI BAR and maximum of 60 PSI at 2 GPM of water flow for proper operation. Failure to provide the requirements may cause the unit to not perform as designed. To insure a safe installation, all plumbing connections should be made by a qualified, licensed plumber familiar with local and national plumbing code. Any and all exposed plumbing connections should be weather proofed to prevent damage to the plumbing and unit. Prior to any maintenance on the unit, lockout the unit from the water sources at points provided on the equipment. *Failure to comply with the previous statement may void the EVOLUTION Dog Wash warranty.*

The EVOLUTION Dog Wash Company is not responsible for failure or operational errors due to improper installation. Failure to comply with the previous statements may void the EVOLUTION Dog Wash warranty.

[2] This circuit is for the main power to the unit. An additional dedicated 110VAC / 20 Amp circuit is required if the unit requires a water heater.

4.1 Receiving Unit and Condition Inspection

4.1.1 Caution Heavy Crate

Extreme caution should be taken when the dog wash has been delivered and is being unloaded. As pointed out in *Section 3.4* the unit will weigh between 1000 Lb. and 1050 Lb. crated. Equipment designed to handle this type of load should be used with qualified personnel operating it.

4.1.2 Unit Inspection

The EVOLUTION should be inspected prior to accepting shipment. Note any damage to the unit crating or unit itself. If damage is substantial EVOLUTION Dog Wash Company should be contacted immediately, failure to so may cause insurance claim to not be accepted

4.2 Uncrating and Positioning

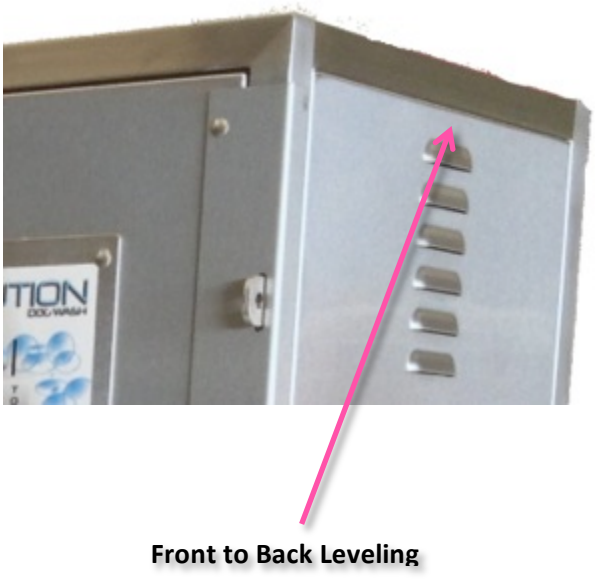
The dog wash is crated with care to prevent damage to the unit during shipping. Upon receiving the unit, carefully remove the exterior crating and dispose of properly. Caution should be used when removing crating for exposed and jagged wood edges and/or exposed nails and fasteners. Remove the inner wrapping by carefully cutting the paper and wrap while pulling away from unit. DO NOT use a razor knife when removing inner wrappings to prevent possible damage to decaling or stainless steel surface. The unit is mounted on a shipping skid that is held in place with 4 lag screws. Prior to removing this skid, it is recommended to position the unit in close proximity of its final location.

Remove the lag screws in the shipping skid to take it from the pallet. Position the unit into it final location leaving adequate room to access the unit to connect to water, electricity, and sanitary sewer.

4.3 Leveling and Securing the Unit

4.3.1 Leveling Unit

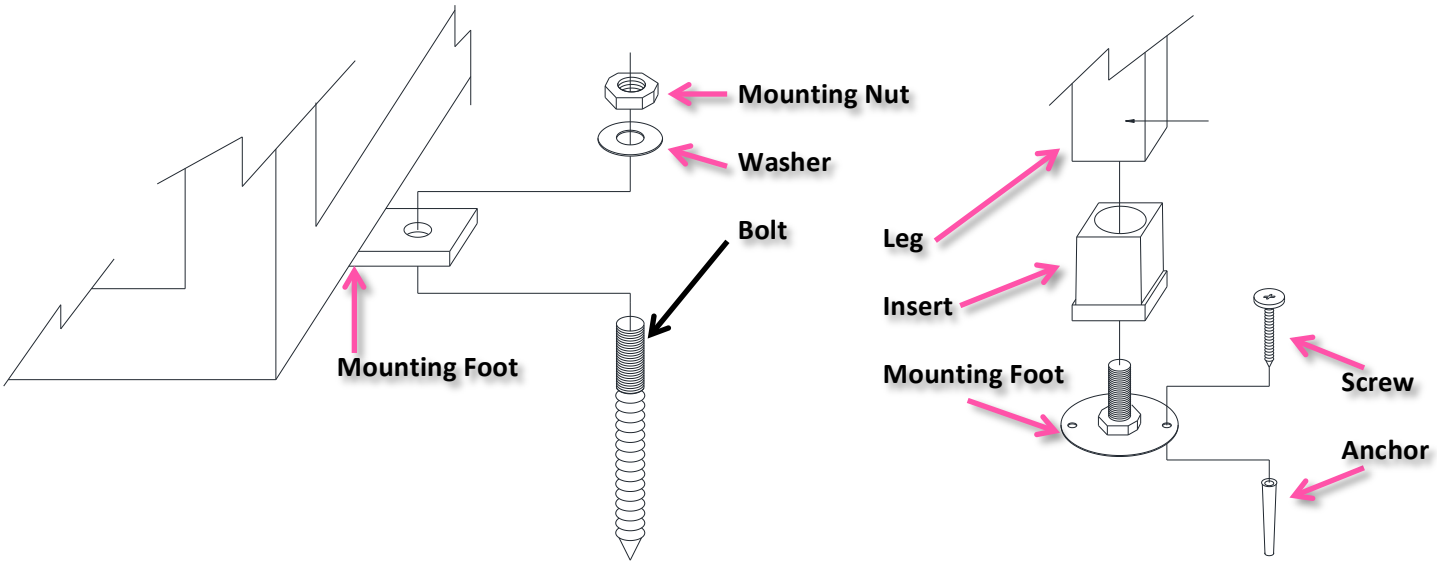
Once the unit has been positioned, then it needs to be anchored into place. Provided with the unit are anchor bolts for the right hand side of the unit. Drill into the substructure, screw these anchors in and tighten with the provided hex nut. There are 4 – Plastic anchors and screws for the four remaining feet on the unit. Drill into the substructure, insert the plastic anchors and use screws provided to anchor in place. Leveling the unit is done by placing a level on the top of the main control cabinet from front to back, level by inserting spacer between the unit and substructure. Place the level on the wash compartment door and adjust leveling legs and secure.



4.3.2 Securing Unit

DANGER

THIS UNIT MUST BE SECURED. The EVOLUTION Dog Wash is a very stable unit, but must be secured to the substructure that it is mounted on. This will prevent accidental tipping over of the unit. There are 2 mounting bolts for the main mounting feet on the right side of the unit, see drawing below for information. There are also 4 mounting anchors and screws for the 4 legs on the unit, see drawing below for information.



4.4 Utility Connections

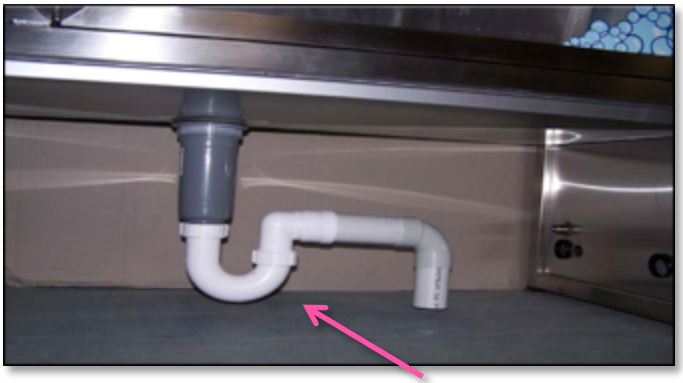
CAUTION

A qualified installer must perform all utility connections; failure to do so may cause injury or equipment damage. Any equipment damage done due to incorrect installation and hookup will void equipment warranty.

4.4.1 Sanitary Sewer

All plumbing connections should follow the local and national plumbing codes and requirements. A 2" Sanitary Sewer connection is required for drainage. While working from the front of the unit remove the 4 allen head bolts holding the front access panel to the unit, remove access panel taking caution to protect decal.

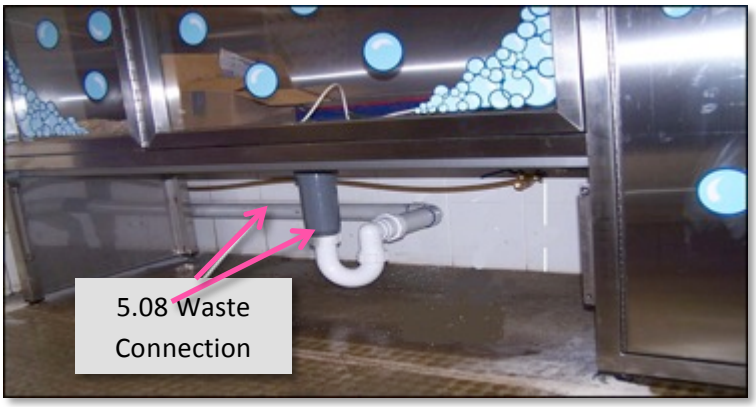
The drain is located in the center of the dog wash compartment 9” off surface.



2” Drain with P trap installed.

Drain in center of wash compartment.

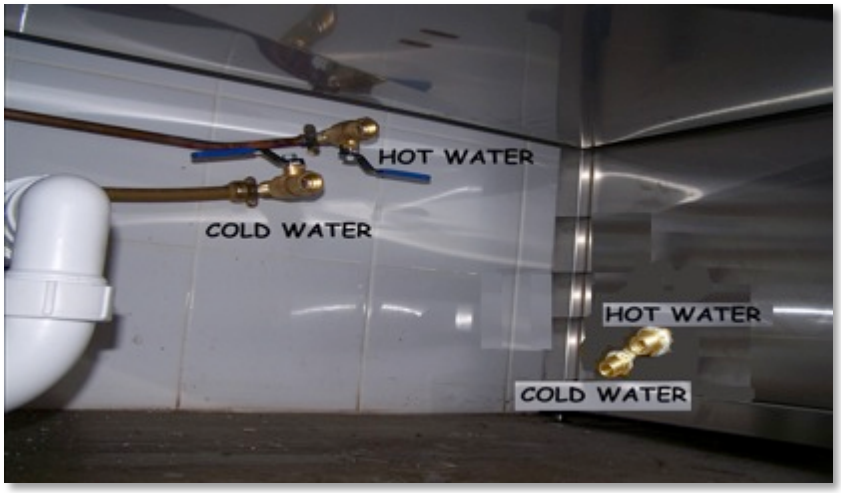
Connect the provided 2” sanitary connection to the unit’s drain. A p trap should be installed per local and national codes to prevent backflow of possible dangerous sewer gases**.**



Shown is a unit that was installed into an existing room, so the connection points were run along the wall. If completing a “NEW” site, these connections can be run through the floor or through the rear wall. Consult your plumber to determine what best suits your situation.

4.4.2 Water

Water connection should be brought to the unit with cutoffs to assist in connect and disconnect functions. Adequate water lines should be used that will support the necessary water pressure needed. ½" Female pipe threads are provided on the unit. Connect to these lines cold water to the cold water connection and heated water to the hot water connection.[3]



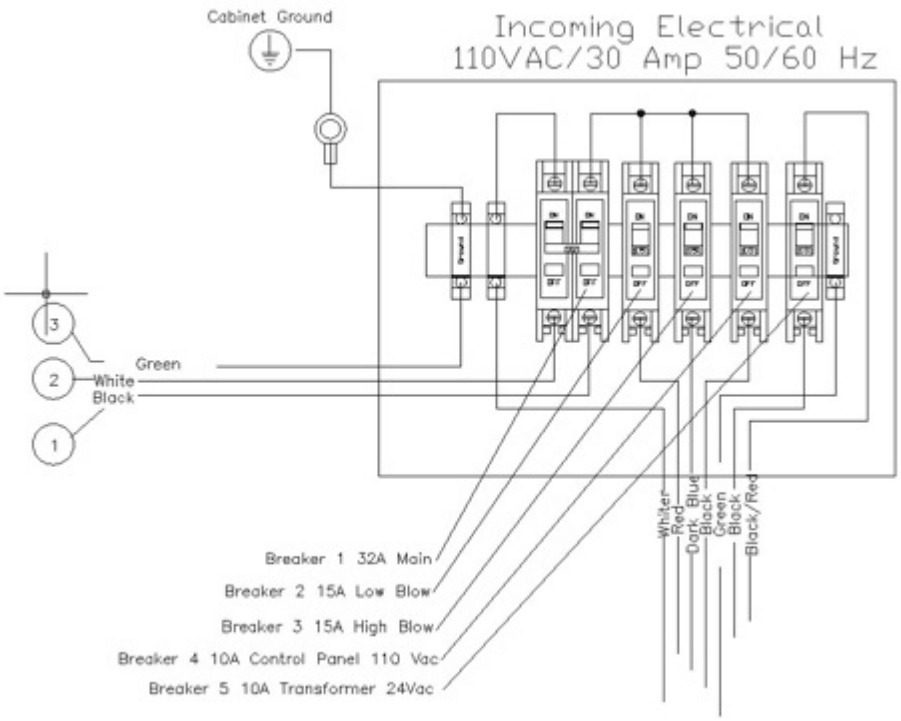
4.4.3 Electrical

A qualified electrician should only make the electrical connections to the unit aware, trained, and skilled in the connection of electrical components. An untrained person performing these functions risks the chance of serious injury or possibly death. Provide a 110 VAC 50/60 Hz 30 Amp Dedicated circuit to the unit. Observe all local and national codes when providing power to the unit. This circuit is for the unit alone, no other appliance should be connected to this circuit.

Connect Dedicated 110VAC / 30 Amp circuit through hole and into bottom of electrical panel.

[3] There will not be a hot water plumbing connection.

4.4.4 Electrical Breaker Box Schematic



Breaker Legend

1 - 110VAC Neutral – White –Main Power – 32 Amp - Double

2 – 110VAC Source – Black – Main Power – 32 Amp - Double

3 – 110VAC – Red – Low Blow – 15 Amp - Single

4 – 110VAC – Blue – High Blow – 15 Amp – Single

5 – 110VAC – Black – Control Pnl Pwr – 10 Amp Single

6 – 24VAC – Black/Red – 24VAC Transformer – 5 Amp Single

5.0 Turn On & Setup

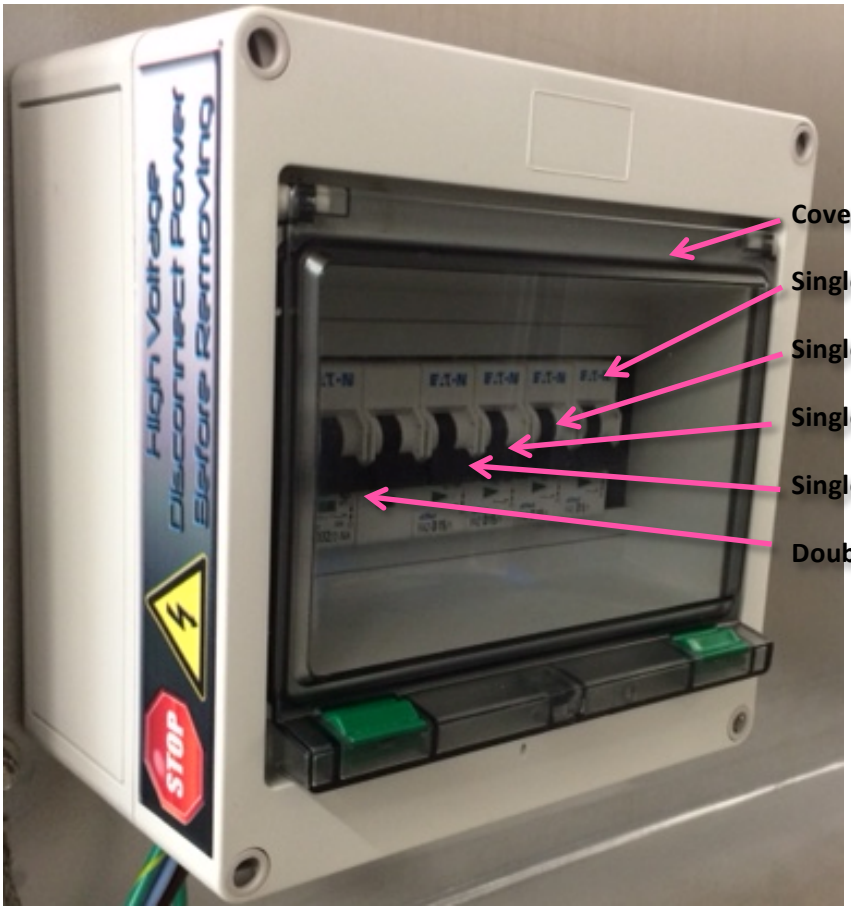
The EVOLUTION Dog Wash comes to you fully wet/electrically tested. The unit is then labeled, drained, and prepped for shipping. The following topics will guide you through the turn on and setup.

5.1 Initial Turn On

Prior to turn on inspect the unit to insure that it is level and secure, electrical source has been provided, water connections have been made, and sanitary sewer connection has been made.

5.1.1 Electrical

Turn the main breaker or disconnect on to the system (not part of the EVOLUTION). Open the main door and lift the cover to the electrical panel located to the left of the cabinet and turn on (up) each breaker[4], if breakers are not in the off (down) position, turn off (down) then turn on (up)

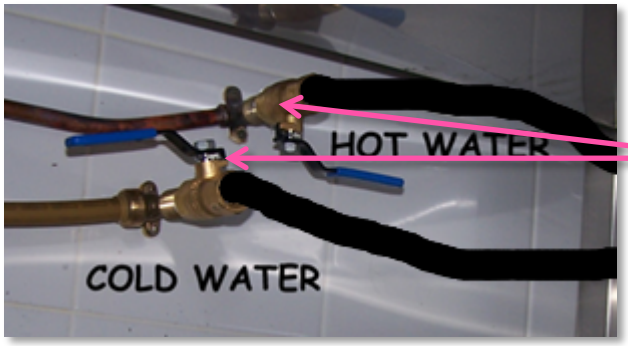

High Voltage
Disconnect Power
Before Removing
STOP
Cover
Single Pole- 5 Amp – 24V Transformer
Single Pole - 10 Amp – Control Panel
Single Pole - 15 Amp – High Blower
Single Pole - 15 Amp – Low Blower
Double Pole – Power

[4] Due to manufacture change or redesign the pictures depicted may not fully represent the breakers in your unit.

You should observe the digital timer display light up and start scrolling. You will also hear a low beep as the digital display powers up. If equipped you will see the (optional) credit card display power up and also beep.

5.1.2 Water

Turn on the water valves that connect the unit to the water supply. Observe connections for leaks water in and around the unit.



Open the main door and check to insure that the main valve is horizontal to the plumbing. These valves allow water to flow through the system.

5.1.3 Operator Switch

The operator switch is located on the left hand side of the meter box when the door is opened and you are looking at the back of the door.

The primary reason for this switch is for testing, cleaning, and running the unit. When the switch is in the on position the dog wash is 100% functional. The switch can also be used as an emergency on switch if all of the cash handling abilities are not working.

5.2 Setup

The EVOLUTION requires a minimum amount of setup once it is received, uncrated, positioned, and utilities connected. However the following sections will describe the setup process for future references.

5.2.1 Shampoo and Disinfectant Products

The EVOLUTION Dog Wash was designed around the wash products provided with the unit, TROPICLEAN and KENNELSOL. The solution ratios suggested in this manual are for those products only. Failure to use these products throughout the warranty period makes warranty voidable.

Berry Clean Shampoo

Opti Neem Flea & Tick Shampoo

Kiwi Conditioner

Disinfectant

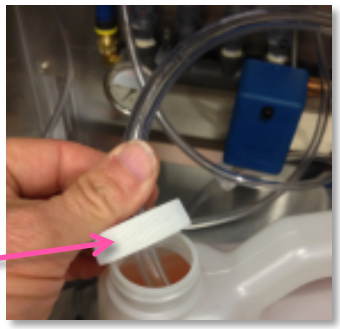
Product Guide, Dispensing, Usage			
Product	**Description**	**Dispensing**	**Usage**
	Shampoo Berry Clean's unique formulation is designed to clean the dirtiest pets while creating a shiny, luxurious coat. Natural protein and raspberry extract replenish the natural moisture balance of the skin and coat. Routine bathing leaves the skin and coat soft, shiny and looking great.	1:8 Ratio 150 Strokes/Min	Approx 100 Washes
	Flea and Tick Shampoo NEEM Shampoo is deep cleaning and effective in relieving irritations due to flea and tick bites. Helps remove doggie odor. This high lathering shampoo cleans the dirtiest pets while creating a healthy, shiny coat. Also used as a de-greasing shampoo.	1:5 Ratio 120 Strokes/Min	Approx 100 Washes
	Conditioner Kiwi Conditioner's advanced conditioning formula with intensified moisturizers soothes dry, sensitive skin. Rich botanical conditioners create a healthy sheen. Eliminates static and tangles, leaving the coat soft and easy to comb.	1:8 Ratio 150 Strokes/Min	Approx 100 Washes

	Disinfectant A total system of high quality product that is safe, effective and environmentally friendly. Use for every aspect of cleaning, disease control, odor control and system maintenance in your unit. Kills pathogens, does not require rinsing and is safe around animals and people.	1:64 Ratio 100 Strokes/Min	Approx 400 Washes

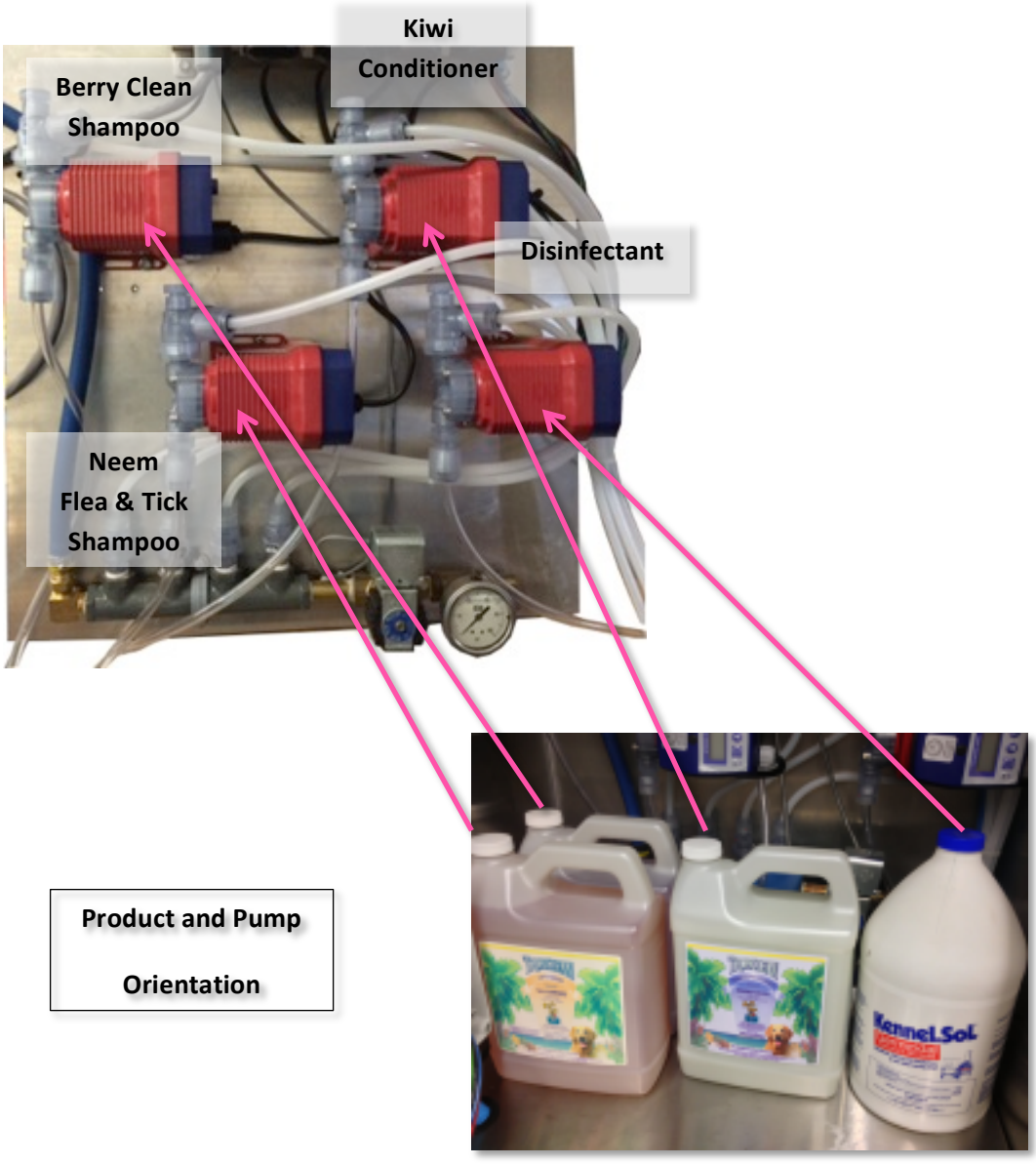
5.2.2 Product Setup

Inside of the EVOLUTION is 4 – 1 Gal. containers of product. They are marked Berry Clean, Opti Neem Flea and Tick Shampoo, Kiwi Conditioner, and KenneLSol Disinfectant. Identify each product and place inside of the EVOLUTION on the middle shelf.

Remove the caps and cover to each product. Place the product suction hose and foot valve into the 3.79 Liter containers and screw on the white lid to the containers. Secure products using strap provided.



5.2.3 Product Setup and Pump Orientation

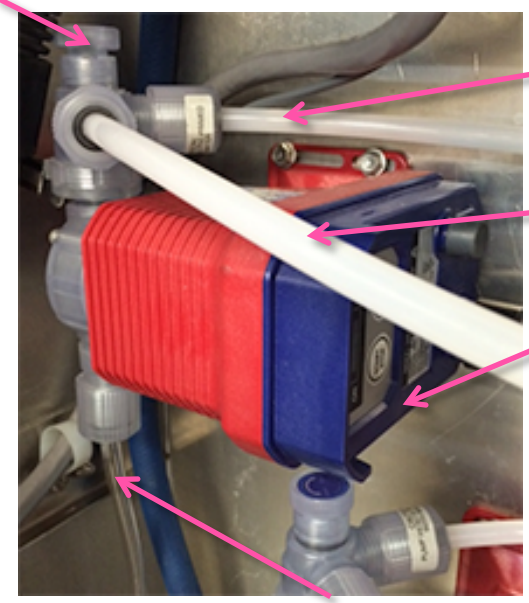


Product and Pump Orientation

5.2.4 Product Dispensing Pumps

The EVOLUTION uses the best product-metering pump recognized in the dispensing industry. The Walchem EJ Series with electronic metering pump and microprocessor control offer precise product injection and ratio control. The compact size and simple control make it ideal for the EVOLUTION application.

Product Dispensing Pump



Pump Components And Connections

5.2.4.1 Pump Priming

Caution should be exercised anytime product dosing, priming, or replacing product. Proper safety equipment should be used to prevent bodily and equipment harm.

During the Quality Control check, prior to shipping, each pump is activated, set to the proper dosing measure, and primed with water. This will allow you to place the proper product suction hose into the proper product and begin using the EVOLUTION. It will take several minutes for the product to be provided to the pump through the hose. In the event the pump needs to be primed follow these procedures:

1. Insure that the product suction hose, foot valve, and cap have been installed.
2. Turn on the unit using the operator switch located on front of meter.
3. Choose the product to be primed on the selection switch on meter.
4. Open the bleeder valve by turning counter clockwise.
5. Observe the product coming up the suction hose.
6. When product reaches pump and starts out the bleeder hose close bleeder valve.
7. Turn product selection to the off position and turn off operator switch.

In the event that the product does not come into the hose and up to the pump, follow these instructions.

1. Follow steps 1-4 above.
2. Press the “increase stroke” button on the pump until the count reaches 360.
3. Listen to the pump pick up speed and increasing the suction on the product.
4. Observe the product coming up the suction hose.
5. When product reaches pump and starts out the bleeder hose, close bleeder valve.
6. Press the “increase stroke” button to the proper product ration setting as below.
7. Turn product selection to the off position and turn off operator switch.

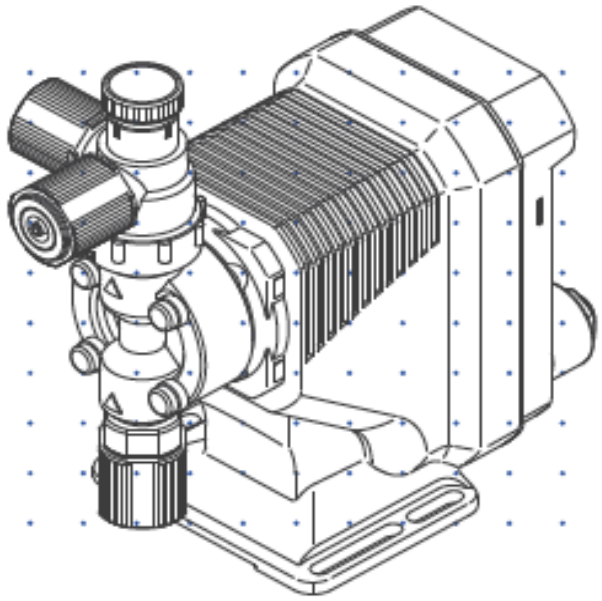
5.2.4.2 Product Dosing Settings

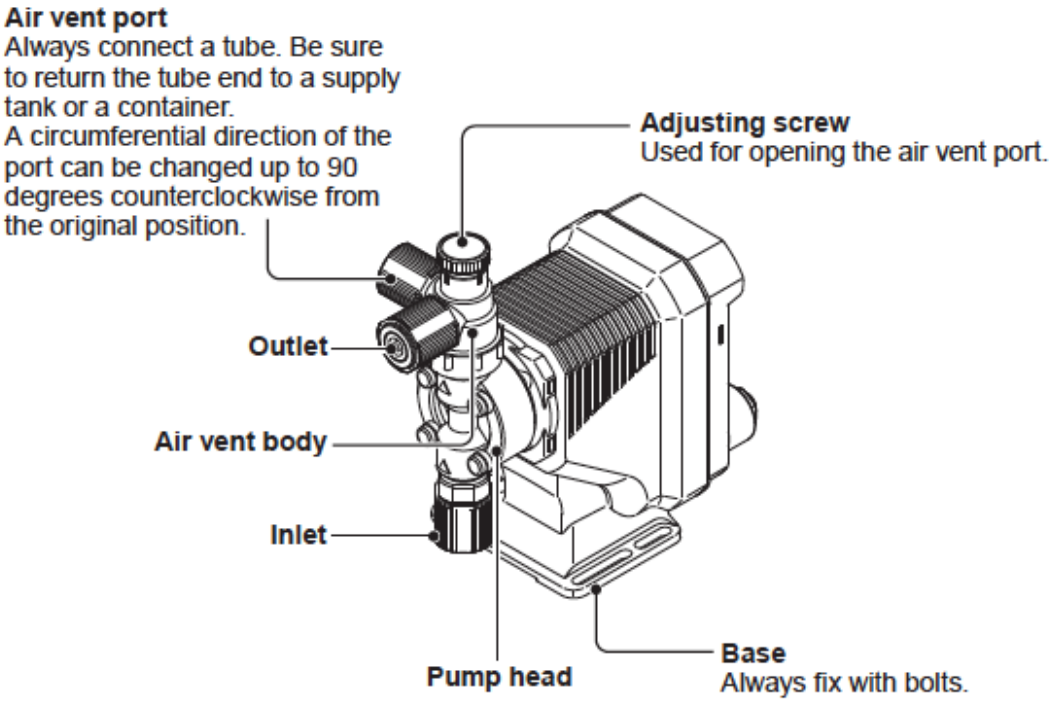
Shampoo	Flea and Tick Shampoo	Conditioner	Disenfectant
150 strokes per min	120 strokes per min	150 strokes per min	100 strokes per min

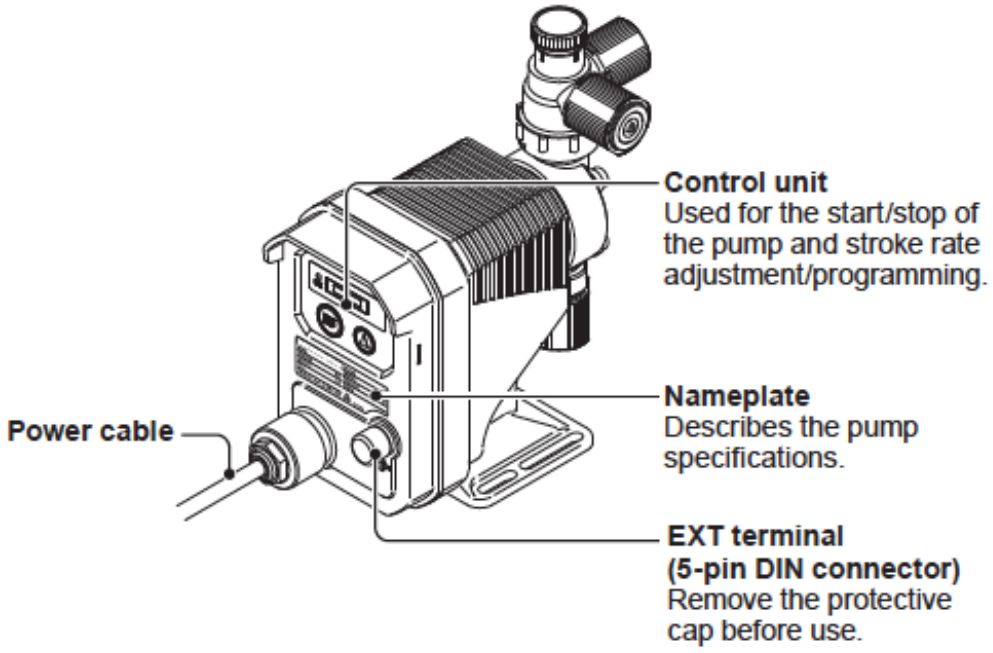
5.2.4.3 Product Dispensing Pumps Support Docs

IWAKI PUMPS

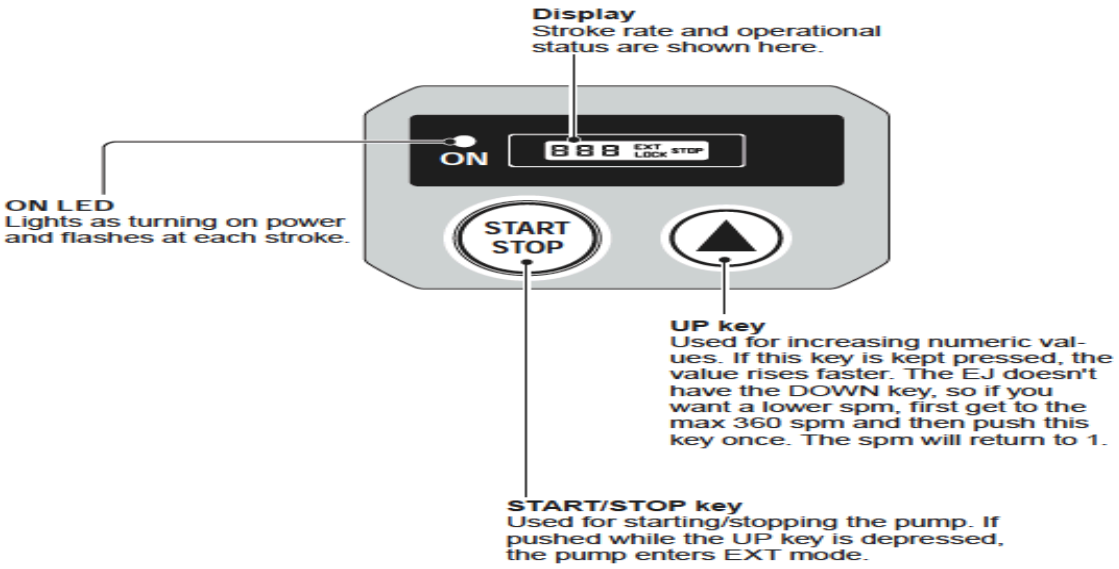
Iwaki
Electromagnetic Metering Pump
EJ-B(R) (Europe)




Air vent port
Always connect a tube. Be sure to return the tube end to a supply tank or a container.
A circumferential direction of the port can be changed up to 90 degrees counterclockwise from the original position.
Adjusting screw
Used for opening the air vent port.
Outlet
Air vent body
Inlet
Pump head
Base
Always fix with bolts.


Control unit
Used for the start/stop of the pump and stroke rate adjustment/programming.
Nameplate
Describes the pump specifications.
Power cable
EXT terminal
(5-pin DIN connector)
Remove the protective cap before use.

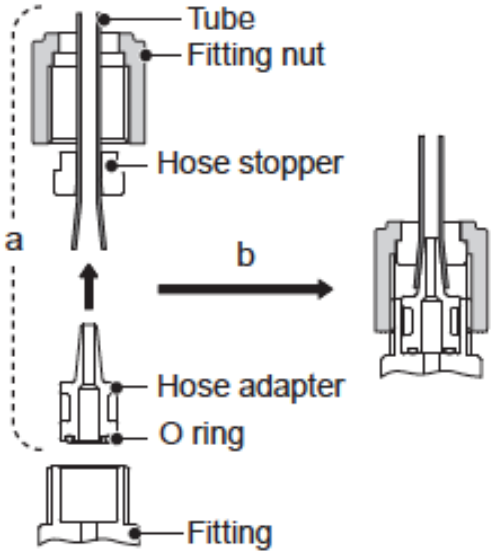
Operational panel


Display
Stroke rate and operational status are shown here.
ON
START STOP
ON LED
Lights as turning on power and flashes at each stroke.
UP key
Used for increasing numeric values. If this key is kept pressed, the value rises faster. The EJ doesn't have the DOWN key, so if you want a lower spm, first get to the max 360 spm and then push this key once. The spm will return to 1.
START/STOP key
Used for starting/stopping the pump. If pushed while the UP key is depressed, the pump enters EXT mode.

Tube connection

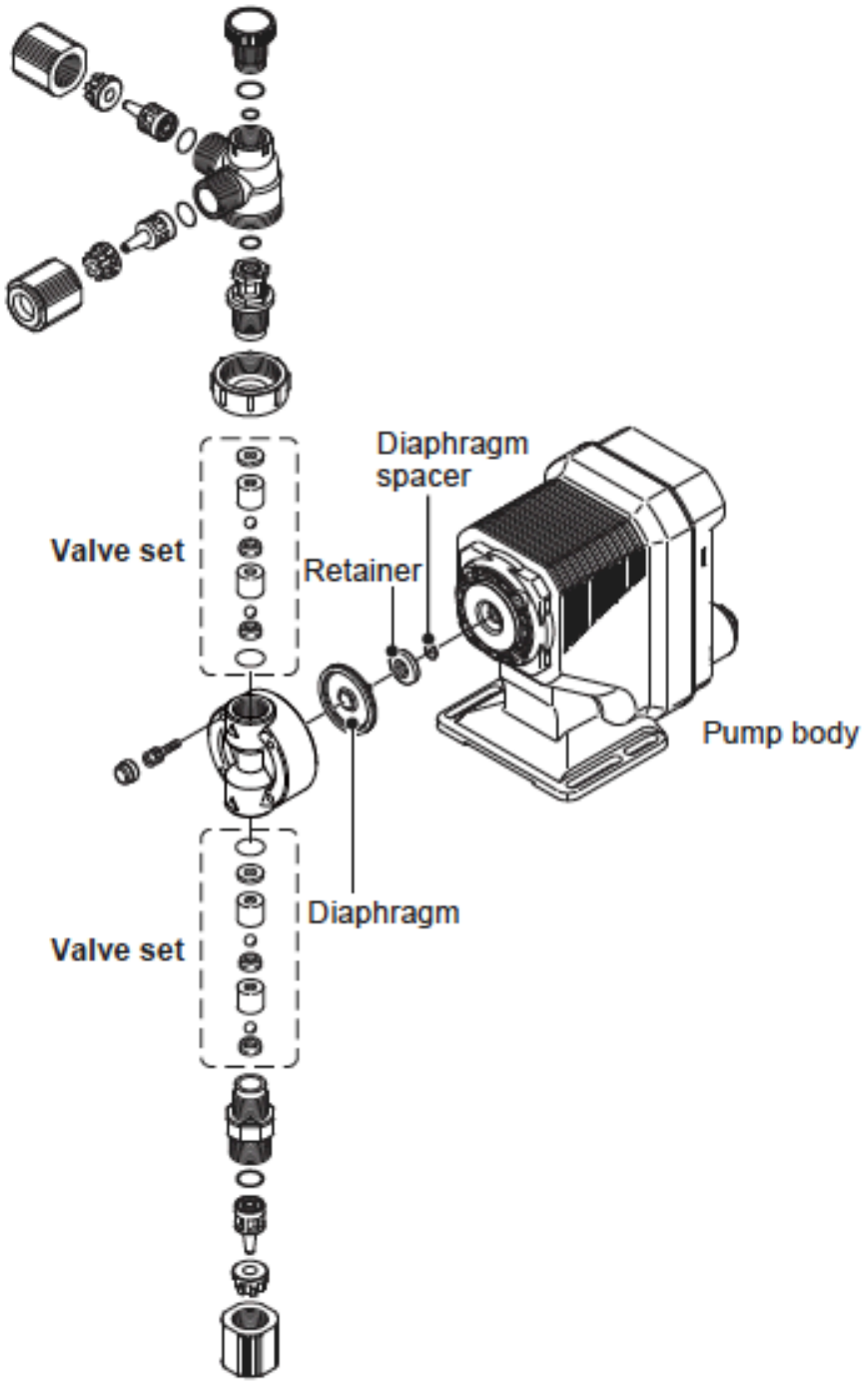
a. Pass a tube into the fitting nut and hoes stopper and then slide it down to the hose adapter as far as it will go.
b. Fit the tube end (hose adapter) to the fitting. Then hand tighten the fitting nut.
c. Retighten the fitting nut by turning it 180 degrees with an adjustable wrench or spanner.

*The plastic fitting nut may be broken if it is tightened too much.

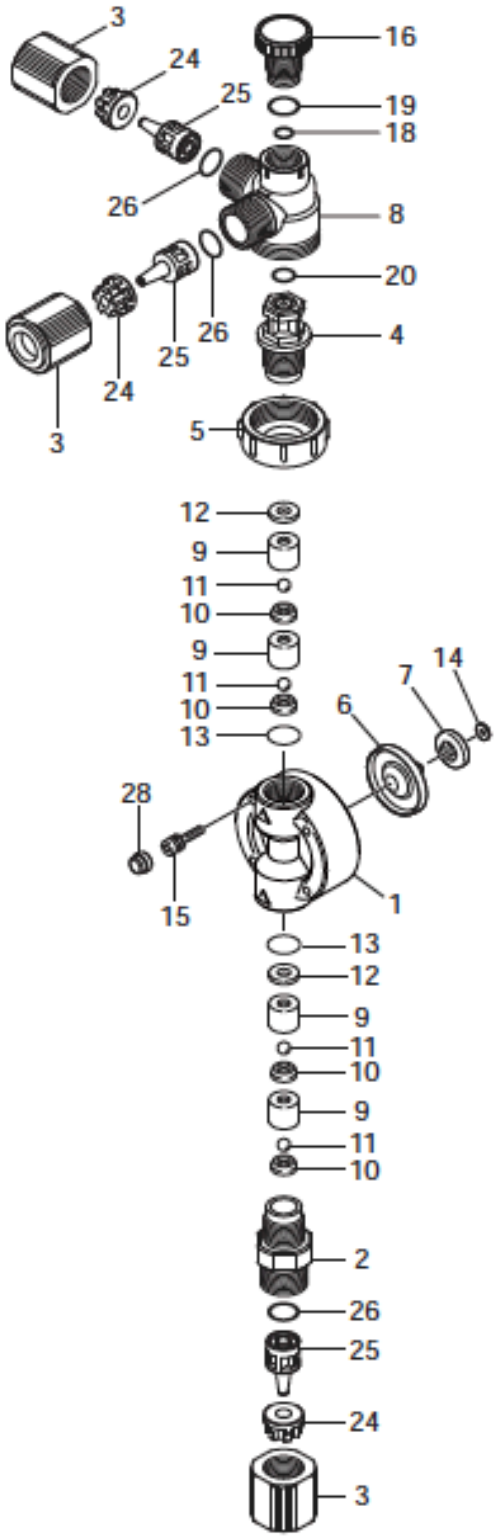


Pump head & Drive unit

The pump in the diagram below is completely dismantled. Do not dismantle the pump beyond the extent shown in this instruction manual.



Pump head

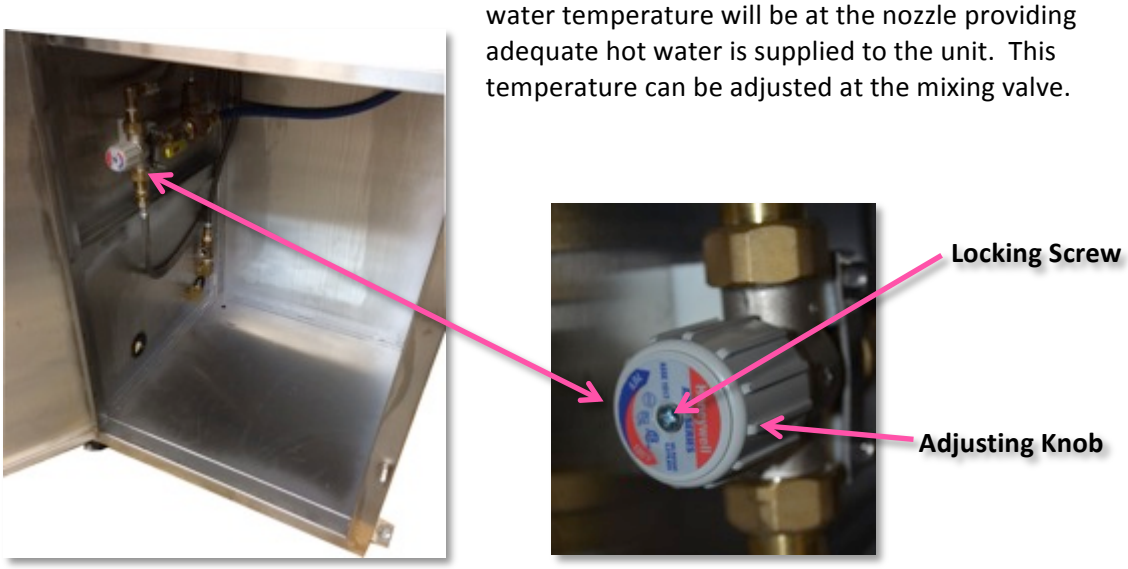


No.	Part names	# of parts
1	Pump head	1
2	Fitting	1
3	Fitting nut	3
4	Air vent body B	1
5	Lock nut	1
6	Diaphragm	1
7	Retainer	1
8	Air vent body A	1
9	Valve guide	4
10	Valve seat	4
11	Valve	4
12	Valve gasket	2
13	O ring	2
14	Diaphragm spacer	*
15	Hex. socket head bolt [PW•SW]	4
16	Adjusting screw	1
18	O ring (P4)	1
19	O ring (P10A)	1
20	O ring (P10)	1
24	Hose stopper	3
25	Hose adaptor	3
26	O ring (P9)	3
28	Bolt cover	4

*The number of diaphragm spacers varies with pump model.

5.2.5 Thermostatic Water Mixing Valve

The EVOLUTION water temperature is maintained by providing hot water to the unit or installing the optional water heater. The water temperature is maintained with a Thermostatic Water Mixing Valve. The water temperature is set to 70f coming from the factory, this is what the water temperature will be at the nozzle providing adequate hot water is supplied to the unit. This temperature can be adjusted at the mixing valve.



To adjust the preset water temperature on the unit follows these steps:

1. Loosen the locking screw by backing out approx. 1/2 inch.
2. Pull the adjusting knob out towards the front of the unit.
3. Turn on the unit using the operator's switch, select rinse, press nozzle button.
4. Turn the adjusting knob counter clockwise while feeling the water coming from nozzle.[5]
5. Once you are satisfied with the water temperature, reverse the steps above.

[5] Typically water that is comfortable to humans is too hot for animals, do not make water too warm.

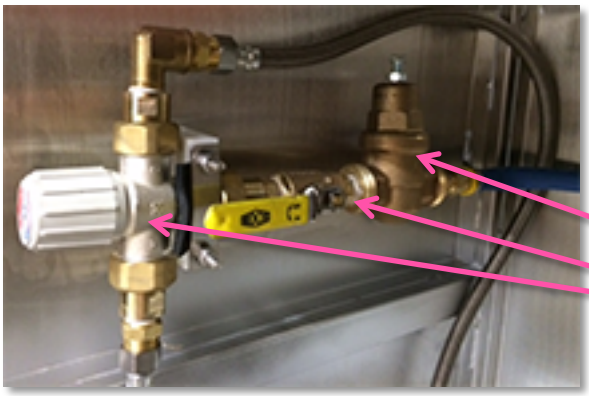
5.2.6 Water Pressure Regulator

Caution should be exercised anytime product dosing, priming, or replacing product. Proper safety equipment should be used to prevent bodily and equipment harm. Lockout procedure should be followed.

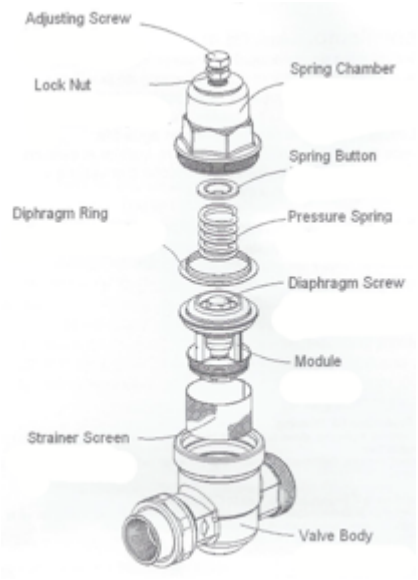
The Water Pressure Regulator is located on the Water Manifold and is used to restrict the flow of water through the system to protect the animals being washed.

The Pressure Reducing Valve (Water Regulator) is preset from the factory at 45 PSI.[6]

Water Manifold



To adjust the water pressure, loosen the lower hex nut counter clockwise. Turn the upper hex nut counterclockwise (-) to decrease pressure and clockwise (+) to increase the pressure. After adjustment, re-tighten the hex nut. In the event that maintenance is required on the pressure regulator, close the isolating valve and lockout prior to the performing any maintenance. Unscrew the Pressure Regulator. Remove the cartridge by pulling straight up. Clean cartridge. Clean and/or replace the Strainer Screen before re-installing the cartridge. Screw the cartridge back into the Valve Body and re-tighten. Do not over tighten to prevent damage.



[6] Caution should be used when adjusting this valve not to exceed a pressure greater than the animal can tolerate.

5.2.7 Solenoid Maintenance

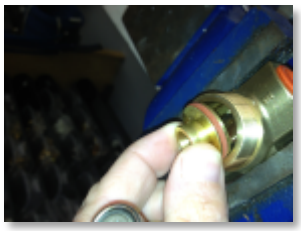
Caution should be exercised anytime maintenance is being performed on the Solenoid Valve. Proper safety equipment should be used to prevent bodily and equipment harm. Lockout procedure should be followed.

The water solenoid valve controls the flow of water through the unit. It is a positive shutoff valve, controlled by the electromagnetic coil on the valve.

Once power has been applied to the coil the valve will allow water to flow thru the unit and out the wash gun hose and wash gun, providing the push button has been pushed on the wash gun. Once power has been removed the solenoid will close and no water will flow. In the event that water continues to come out the wash gun after the solenoid has been de-activated there is a good chance that trash in the valve is preventing it from completely closing. This can be caused by improper clean up from plumbing connections, trash in the system, or most likely a build-up of calcium deposits from "hard water". The following procedures will lead you through correcting this problem.

1. Remove the coil from the valve by loosening the screw on top of the coil.
2. Remove the stem by loosening the large brass nut on the solenoid body.

3. Once you have the nut loose, and then carefully pull on the stem to remove the plunger. Place hand under valve to catch any falling parts.
4. As you will see on the plunger it is shaped with a point. The point goes into the seat of the valve and seals off the pressure on the valve.
5. Clean and debris from the seat and point on the plunger. Grabbing the raised portion and lifting out can remove the seat.

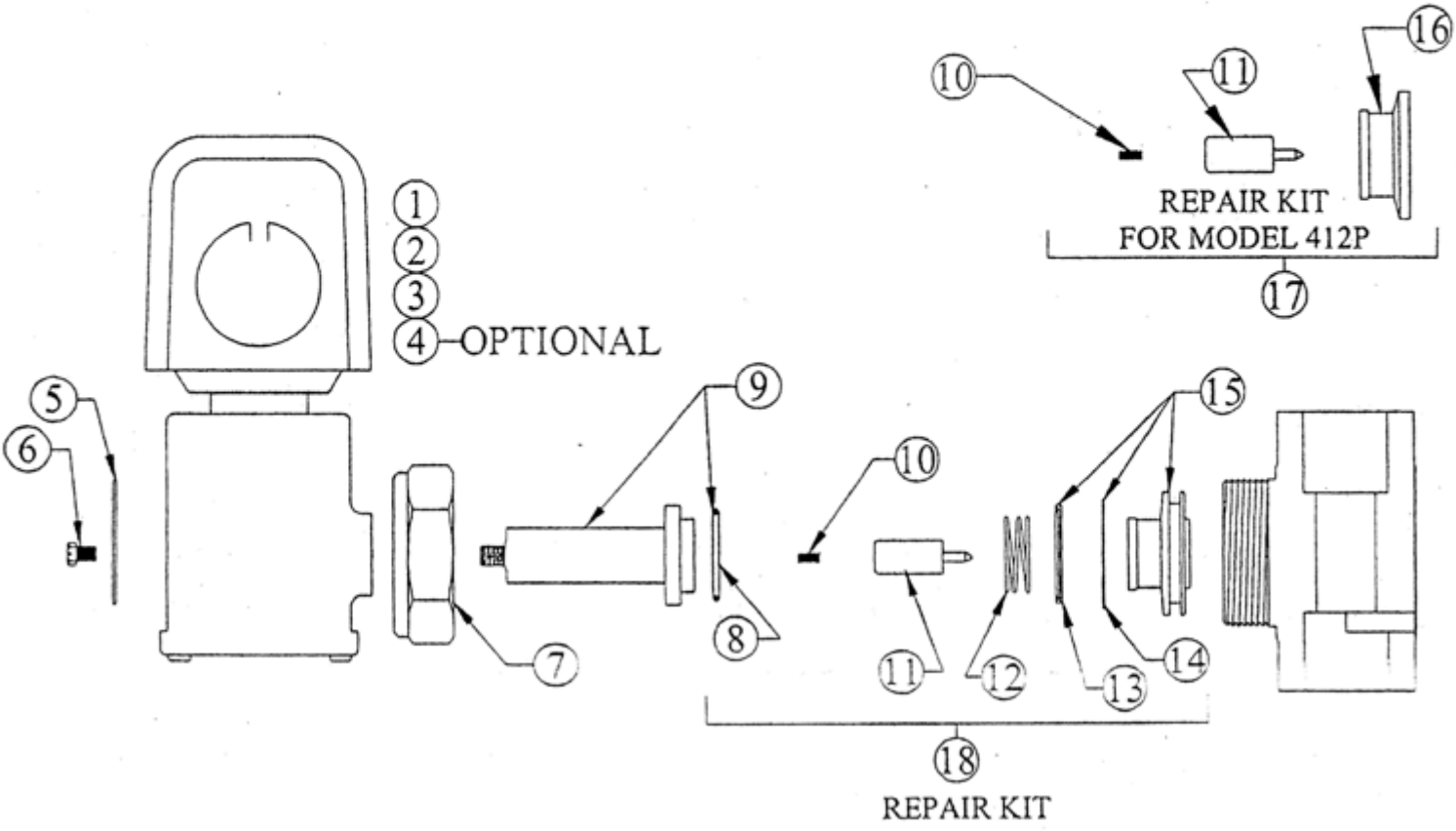


6. As you will see on the plunger it is shaped with a point. The point goes into the seat and seals off the pressure on the valve. Clean any debris from the seat and point on the plunger. The seat can be removed by grabbing the raised portion and lifing out. Turn the seat over and observe the small orifice hole in the seat, this is most likely where trash will be found.
7. Once any trash has been removed then re-assemble the solenoid by reversing the above steps.

MODEL 412P, A413P, A414P, A416P & A418P SOLENOID VALVE
INSTALLATION INSTRUCTIONS

SOLENOID VALVES, GENERAL PURPOSE

MODELS 412P, A413P, A414P, A416P, A418P

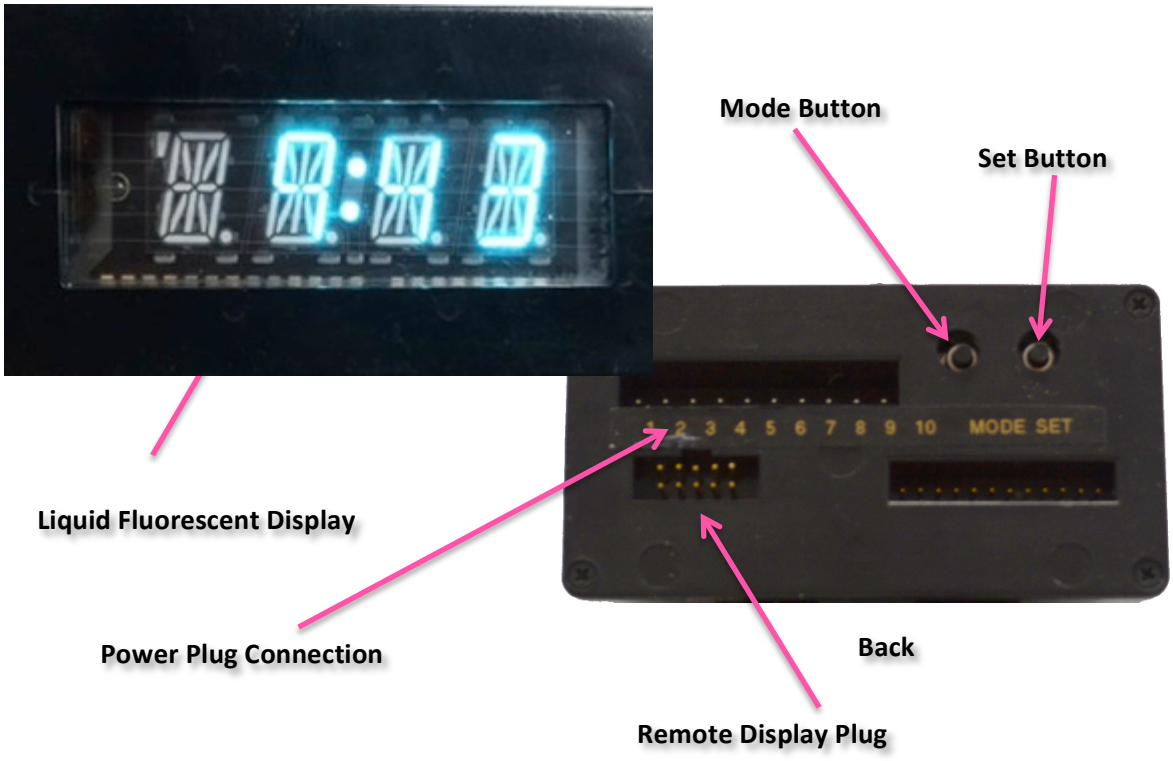


5.2.8 Digital Timer Setup

The EVOLUTION is supplied with one of the most reliable Digital Timer/Display available on the market today. It is user friendly, multi price and time settings, and the brightest liquid fluorescent display that is sunlight readable. The timer comes pre programmed to what you elected in your purchase options. Default setting is £10.00 for 10 minutes.

5.2.9.1 Digital Timer Programming

Observe the timer front and back and orientate yourself with its display and control buttons.



The following steps will guide you through a complete setup. Once you have begun programming you will need to complete the cycle for the programming to take effect.

Pressing the mode button will advance you through the different programming modes.

Once you are in a programming mode you will use the set button to advance to the options available in that mode.

Press and hold the MODE button for 5 seconds to enter first programming sequence.

FUNCTION: (PET) The function mode allows the timer to be set to a different mode, activating additional functions. For the EVOLUTION this should be showing "PET", if it does not, then press the SET button until "PET" shows in the display then press the MODE button to advance to the next sequence.

UNIT NUMBER:(01) This is not currently being used in the EVOLUTION.

NATIONALITY:(INT) The nationality setting is used to setup pricing and display of the EVOLUTION, INT or AUS is used. Toggle by pressing the set button.

TOKEN:(T:01) This is not currently being used in the EVOLUTION.

PRICE:(10:00) The EVOLUTION default price is 10 for 10 minutes, to change press the SET button, this will advance the price in 1 increments.

TIME:(10:00) The EVOLUTION default time is 10 minutes, to change press the SET button, this will advance the minutes, press MODE to move to the seconds press the SET button to advance the seconds.

SECONDS PER ADDITIONAL COIN:(C:015) The seconds per additional coin is calculated by the price and time setup. In the 10 for 10 minutes scenario it will show 1:00 seconds.

GRACE TIME:(G:020) The EVOLUTION offers grace time to its customers with the default period of 20 seconds. Grace time allows the customer to continue their washing period with the smallest of coin for the period of time setup for that coin. Scenario – Customer is in the process of finishing their wash cycle and time expires. The customer just likes a small amount of time to finish and does not want to commit to another 10 minutes of time. The customer may at this time insert coins, tokens, or bills giving them additional time on the meter, but must be done within the grace time period. If this selection is set to "0", then no grace time is available. The grace time function is only available once per cycle.

HORN:(h:10) When the time reaches the last sixty seconds of the cycle, the horn will beep for the amount set in this setting.

FINISHING THE PROGRAM: After the horn setting has been set/changed then continue to press the mode button until you see the version setting displayed on the screen

SOFTWARE VERSION:(V7.40) Once the last function is set on the timer and the mode button is pressed, then the display will show the current software version of the timer. Once you see this then rest assured that the programming changes have taken effect.

6.0 Operating The Unit

Once you have completed the Uncrating, Inspecting, Leveling and Securing, Utilities Connections, and Setup you are ready to put your EVOLUTION into service and begin collecting revenue. The following section will identify and explain the basics of operations.

6.1 Operations

Operating The EVOLUTION Dog Wash is very simple with just a bit of understanding. It is very Important that the owner/operator have a clear understanding on how to operate the unit and be able to instruct the customers in its proper use.

6.1.1 Manual Operations

There is just a simple instruction in the manual operations of the EVOLUTION. This is done by using Operator Key located on the front of the Meter Box. Insert the operator key into the key slot and turn the key to the right 90degrees. The unit now has complete power and operation capabilities. Any function may be used while the operator key is in the "on" position. The manual operations will be done while performing maintenance, priming product pumps, or customer operations in the event other possible operational problems. Once one of these operations have been completed, turn off the operator key by turning to the left and removing the key.

6.1.2 Customer Operations

The EVOLUTION is designed to offer to the end user/customer the best Dog Wash available in the industry. You as the owner operator selected what functions you would offer your customer including Coin/Token acceptance, Note acceptance, and optional Credit Card Acceptance. The following descriptions involve a typical customer usage you will train your customers to your preferred methods.

1. Place animal to be washed in the wash area of the unit.

2. Secure the dog in the wash compartment using the latch and chain in the EVOLUTION.

3. Satisfy the turn on price for the unit[7] using either of the methods shown.

[7] Default pricing is $10.00 for 10 Minutes.

Coins or Tokens

Notes

Credit Card

4. Once price has been satisfied the Digital Timer display will start counting down for the wash cycle.

5. Make a selection on the meter to begin washing.

Make Selection

6. It is recommended that you first disinfect the tub[8]. Begin to wash the dog following the guidelines stated on the Menu decal by starting with shampoo selection, removing the wash gun from the hold and press the button on top of gun to start washing.

Push Button

7. Continue through each cycle, thoroughly washing the animal.

[8] While disinfecting the washtub area, no animals should be in the unit.

8. Use the Low Blow and High Blow positions on the selection decal to turn on the blower, thoroughly dry the animal.

9. Upon completion of the wash and dry cycle rinse down the wash area using the disinfectant selection. The customer should be encouraged to use disinfectant on the beginning and also at the end of the wash cycle. This will give then a comfort level for their animal's care.

10. Hang up hoses, unlatch the latch from the animal and help animal to exit.

7.0 Maintenance

As with any piece of equipment, the maintenance to the EVOLUTION is the key to its longevity. Insure that the person(s) performing the maintenance understands the steps and tools needed to perform the maintenance. The following is a list of suggested maintenance items. If a operational problem occurs it should be addressed immediately to prevent downtime or possible damage to the EVOLUTION. You will develop your own procedures based on your business model.

7.1 Cleaning Procedures

Suitable clothing, hand and eye protection should be used prior to any cleaning procedure.

1. Use the operator switch to turn the unit on, select the rinse option and wash the tub area of the dog wash using the dog wash gun, rinse all the excess waste to the edges and under the floor and turn off gun.
2. Using the lifting tool, lift the floor and support using the support rod under the floor.
3. Carefully gather all of the waste hair prior to removing the square hair guard and properly dispose of; do not dispose of into a waste drain.
4. Remove the square hair filter in the middle of the floor, clean any large remaining waste and properly dispose.
5. Turn the wash gun on and rinse the tub area again, pushing the waste towards and into the center filter/drain, while doing so wash the bottom side of the floor.
6. Remove the cylindrical filter from the drain in the middle of the floor. Do this by lifting out the basket using the lip to assist removal. Empty the contents into the trash, again not disposing into the waste drain system. Do not attempt to wash anything while this basket is removed. Replace basket and do any other washing that may be needed at this time.
7. Replace the square primary drain.
8. Turn the wash gun on and select the disinfect option on the menu, wash underneath the floor and the complete washtub area.
9. Lower the floor and wash the complete tub area with disinfectant.
10. Turn off gun and operator switch.
11. Using a soft cloth, wipe over the meter front, menu, and dog wash area. Do not use abrasive solvents, powders or paste.
12. Clean the stainless steel by wiping down with a light oil spray such as WD-40. Use caution if using any type of stainless steel polish and follow the grain of the panel being cleaned.

See Pictures at the end of this section for orientation.

7.2 Schedules

7.2.1 Daily

- Clean the complete dog washing area following the cleaning procedures listed above.

7.2.2 Monday and Friday

- Collect Revenue from EVOLUTION
- Using the lifting tool, provided, lift the floor platform, remove hair and waste from filters, rinse and disinfect. (Every 25 wash cycles.)
- Open main cabinet, check soap levels and re-supply as needed.
- Check product hoses for proper delivery of product. Perform maintenance or bleeding of the pumps as needed. See manual section **4.2.3.1 Pump Priming**

7.2.3 Monday and Friday

- Clean the stainless steel by wiping down with a light oil spray such as WD-40. Use caution if using any type of stainless steel polish and follow the grain of the panel being cleaned. Do not use any abrasive cloth, chemical, paste, or cleaner.

7.2.4 Monthly

- Clean dryer filter.
- Clean coin mechanism.
- Clean note acceptor.

.

7.2.5 Bi-annually

- Inspect and replace any damaged hoses, fittings, and valves, including the wash gun.

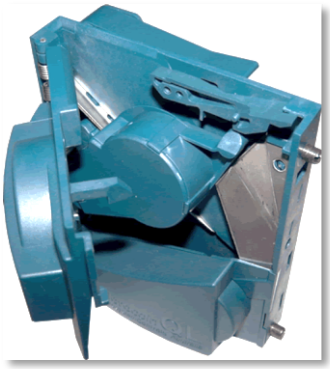
7.2.6 Annually

- Inspect and replace dryer hose assembly if needed.
- Remove all products from main cabinet, clean and inspect for possible problems.
- Re-Install any removed objects.
- Re-Prime pumps.
- Inspect and replace any damaged decals if needed.
- Completely clean and polish stainless, paying close attention to any stains that may have occurred.

See Pictures at the end of this section for orientation

7.4 Coin Accpetor Maintenance

The EVOLUTION uses the Micro-Coin coin acceptor for the features it offers. It will accept coins and tokens purchased from The EVOLUTION Dog Wash Company.



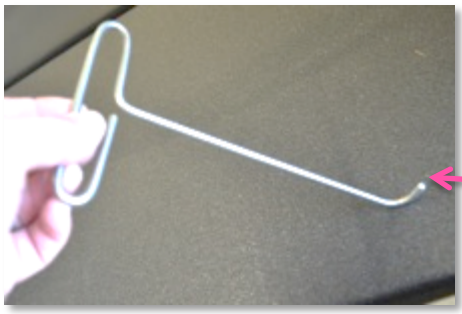
Open the upper meter door to access the coin mechanism. Remove the clip holding the coin acceptor in place by pushing upwards on the bent tab. Pull the clip forward, it is hinged on the bottom. With the bracket down grasp the coin acceptor and pull it towards you. Open the coin acceptor door exposing the coin path. Using a damp cloth clean the coin path and then replace the coin acceptor in the reverse order you removed it.

7.5 Dryer Filter Maintenance

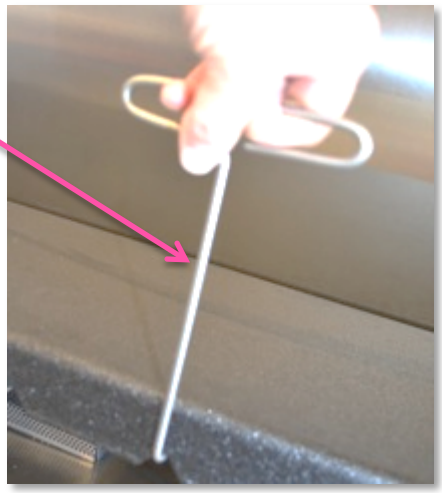
Metro Vacuums and Dryers are the most robust in the industry. They are widely used by groomers around the world for their superior performance, low maintenance, and great quality. This is the dyer that used in the EVOLUTION. It requires little to no maintenance. The following will show how to clean and maintain the filter.

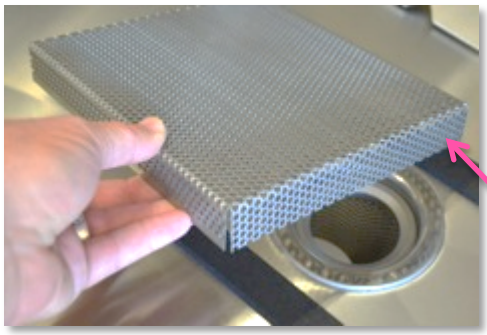
Remove the cover on the bottom of the dryer by turning the black plastic thumbscrew. Pull the housing down exposing the filter. Remove the filter and clean using a light soapy solution. Dry the filter and replacing the housing.

7.6 Other Support Pictures



Lifting Tool



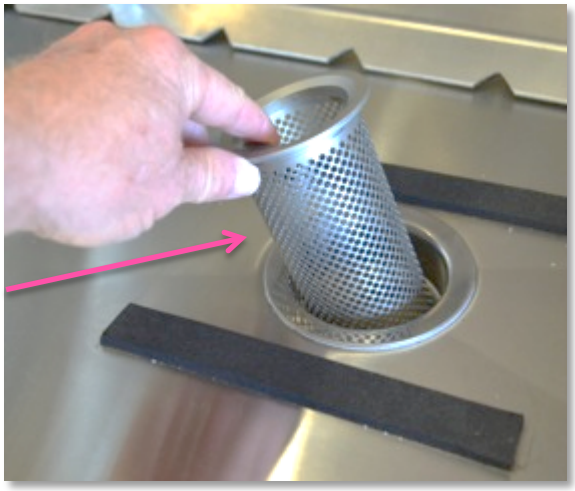


Primary Hair Screen

Use these pictures as reference to the cleaning procedures in section 7.

Floor Support Rod

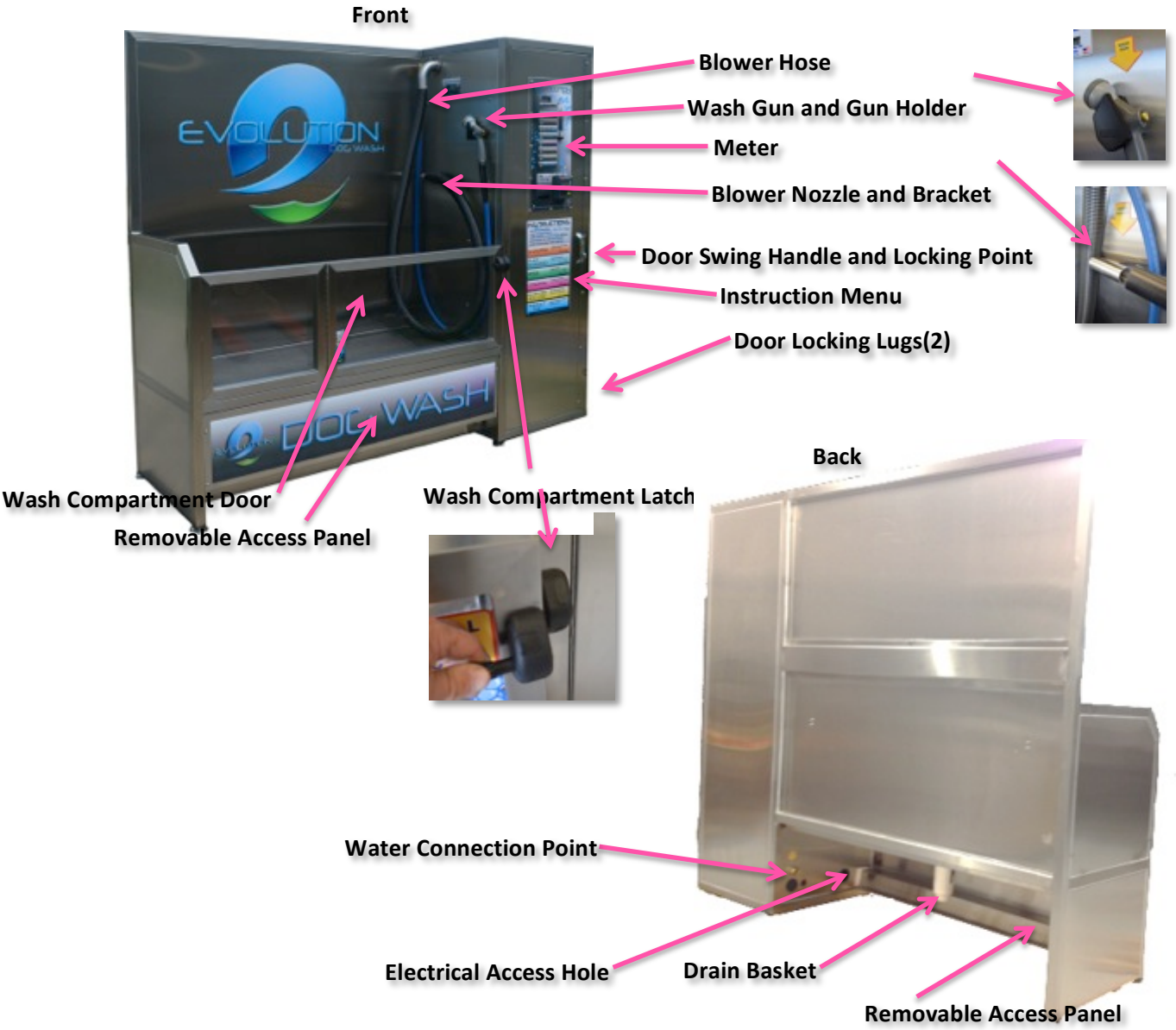
Final Hair Filter



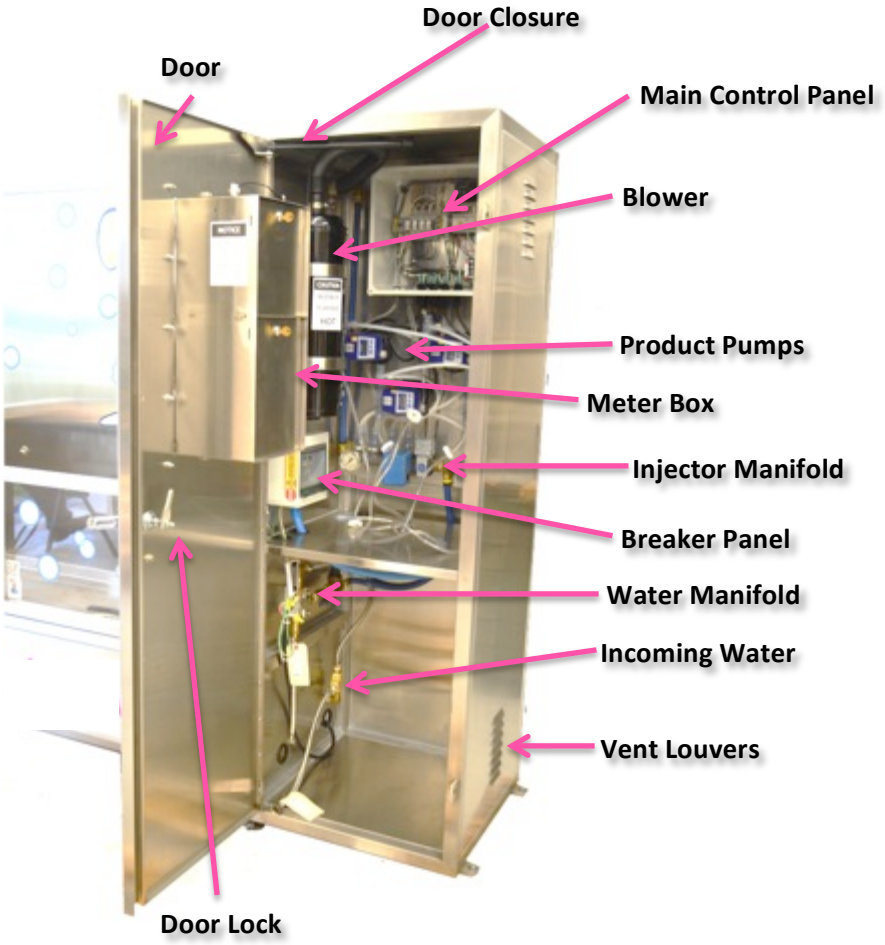
8.0 EVOLUTION Parts Identification and Location

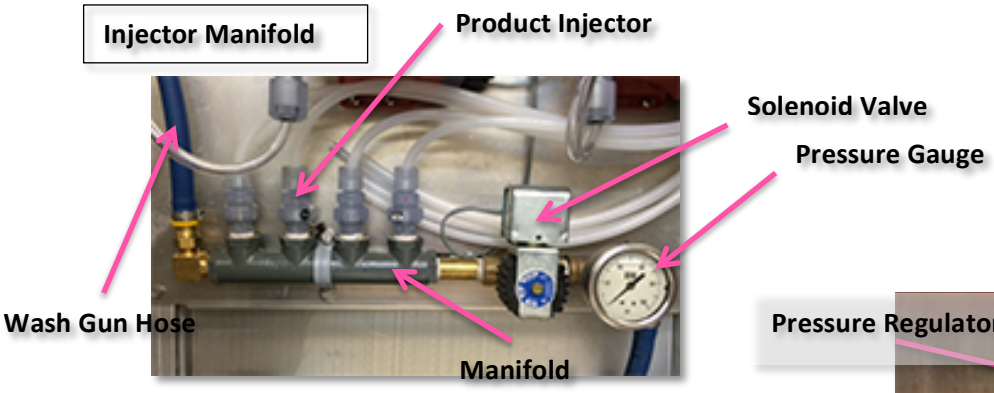
The EVOLUTION Dog Wash Company strives to provide the best products available to us at time of manufacture, but due to design changes by EVOLUTION or providing manufacture the components provided in your EVOLUTION may be slightly different than shown here but will function in the same or similar manner.

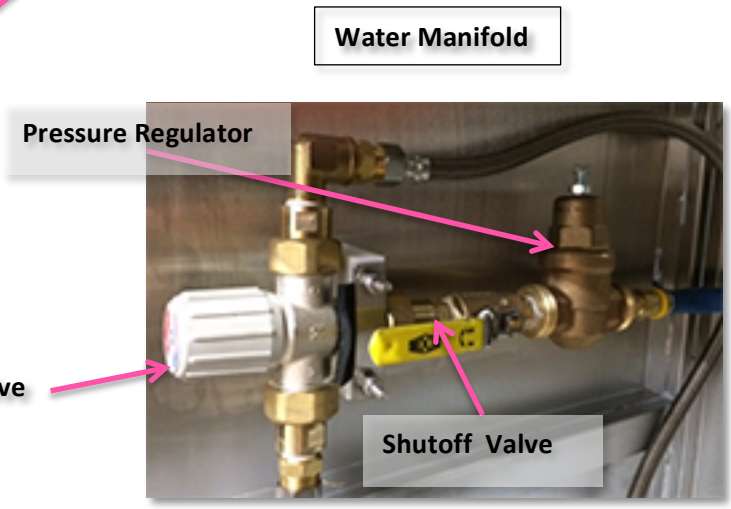
8.1 Outside



8.2 Inside

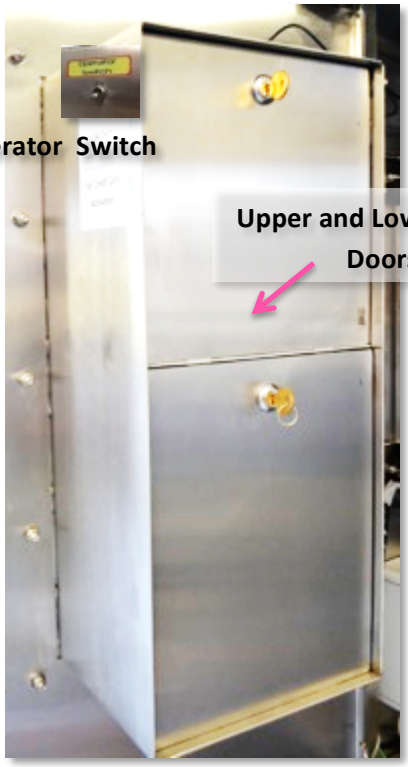

Door Closure
Door
Main Control Panel
Blower
Product Pumps
Meter Box
Injector Manifold
Breaker Panel
Water Manifold
Incoming Water
Vent Louvers
Door Lock

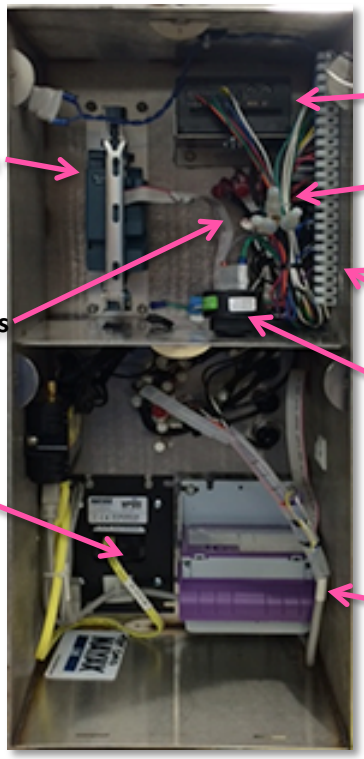

Injector Manifold
Product Injector
Solenoid Valve
Pressure Gauge
Wash Gun Hose
Manifold


Water Manifold
Pressure Regulator
Thermostatic Valve
Shutoff Valve

8.3 Meter Box

Meter Front
Timer Display
Coin Slot
Wash Selections
Coin Return
Note Acceptor
Credit Card Reader


Operator Switch
Upper and Lower Meter Doors


Operators Key
Digital Display Timer
Coin Mech
Coin Mech Pwr Supply
Selector Switches
Wiring Strip
Horn
Credit Card Acceptor
Note Acceptor

9.0 Troubleshooting

The following section of Troubleshooting will help you to determine the most common problems and fixes related to the EVOLUTION. By no means is this all of the problems and fixes but seem to be the most common.

Troubleshooting The Most Common EVOLUTION Problems

Problem	Solutions
Unit fails to power up	1. Insure that the supply power is turned on to the unit. 2. Check circuit breakers in the breaker panel 3. Remove main control panel cover and verify that the 5 amp and 10 amp breakers are armed. 4. Check primary side of transformer inside the main control panel for voltage of 220 VAC. 5. Check secondary side of transformer for voltage of 24 VAC.
No water comes out the wash gun hose when powered up	1. Make sure the unit water supply has not been turned and there is water coming to the unit. 2. Make sure a selection has been made. 3. Make sure that either the operator key is in the on position or the timer has time being counted down on it. 4. Make sure the wash gun button has been pushed. 5. Verify that the water pressure regulator has not been adjusted, allowing a greater pressure than 60 psi to flow through the unit. 6. Remove the wash gun and see if water will flow, indicating the wash gun is clogged. 7. Verify that the water connection is correct, hot on hot and cold on cold.
The water coming out of the wash gun is cold	1. Insure the incoming water supply is hot. 2. Insure the water heater is heating water and is connected correctly. 3. Adjust the water thermostatic valve according to the instructions.
Water leaks out of the wash gun hose after the unit is off	1. Check the solenoid valve for trash and clear as necessary.

Pump loses prime	1. Check grey foot valve in product. 2. Remove and clean. 3. Should not be able to blow thru valve.

Troubleshooting (Cont'd)

Troubleshooting The Most Common EVOLUTION Problems Continued

Problem	Solutions
Wash products are not being dispensed out the wash gun hose	1. Make sure a selection has been made. 2. Check product level inside cabinet. 3. Re-prime the pump. 4. Check for clogged or missing product hose. 5. Insure that the pump switch is not off.
Unit fails to drain	1. Check and clear any waste in primary and secondary hair screens. 2. Check sanitary waste drain for blockage.
EVOLUTION has low water pressure	1. Check incoming water pressure for proper pressure 1.4 – 4.1 Bar. 2. Verify that no valves have been turned off or partially turned off. 3. Adjust water regulator according to the instructions.
Credit Card unit not accepting cards	1. Check status on front of credit card reader. 2. Contact credit card processor.
Not receiving Credit Card income into my bank account.	1. Contact credit card processor.
Leaking after freezing temperatures	1. Check for leaking hoses and replace as needed. 2. Check for leaks at pressure regulator. 3. Check water manifold, gauge, pressure regulator for leaks and repair as needed.
Does not accept bills	1. Check for solid red lite on back of bill acceptor. 2. Check that bill box has been properly installed. 3. Check flashing lights on front of acceptor.
Does not accept coins	1. Verify that there is power to coin acceptor by seeing green LED. 2. Clean coin path.
Tokens do not work	1. Only token from EVOLUTION will work. 2. Send acceptor in for testing and programming.

10.0 Technical Information

10.1 For Technical Information Contact:

Contact Information

Evolution Dog Wash Company
487 Fox Run Dr.
Carbondale, CO 81611
Owner: Gary Sherman
Phone: 800.426.0760
Cell: 970.930.5330
Web: www.EvolutionDogWash.com
Email: gary@evolutiondogwash.com

11.0 MSDS Sheets

11.1 Shampoo – Berry Clean

MATERIAL SAFETY DATA SHEET

SECTION 1: Manufacturer's Name: Cosmos Corporation
Address: P.O. Box 414, Wentzville, MO 63385
Emergency Telephone No.: 800-542-7387
Information Telephone No.: 636-327-5533
Trade Name: **Tropiclean Berry Clean**

SECTION 2: Physical and Health Hazard Ingredients: None

SECTION 3: Physical Characteristics:
Boiling Point: N/A Specific Gravity: 1.03-1.07
Vapor Density: Approx. 0.9 Evaporation Rate: Not volatile
Solubility in Water: Complete Color: Pink
Melting/Freezing Point: N/A Odors: Tropical Smell

SECTION 4: Fire and Explosion Hazard Data
Flash Point: None
Flammable Limits: Product is considered non-combustable
Special Fire Fighting Procedures: None Known

SECTION 5: Reactivity Data
Stability: Stable
Hazardous Decomposition: None known
Incompatibility: Strong oxidizing agents. Strong acids.
Hazardous Polymerization: will not occur
Conditions to avoid: None known when used as directed

SECTION 6: Health Hazard Data
Effects of over exposure: Possible minimal skin and eye irritation.
FIRST AID: Inhalation - Seek fresh air. If breathing is difficult, see a physician. Skin - wash contact area with flowing water.
Ingestion - give two glasses of water to dilute. See Physician Immediately. Induce vomiting only on the advice of a physician. Never give anything by mouth to an unconscious person
Eyes: Remove contact lenses. Flush with water for 15 minutes.

SECTION 7: Occupational Protection Procedures
Respiratory Protection: not required Ventilation: local
Protective Gloves: not required
Waste Disposal Method: Dispose of with solid waste according to Federal, State and Local Regulations.
Eye Protection: Avoid contact with eyes.

The information contained herein is based on the data available to us and is believed to be correct to the best of our ability. However, Cosmos Corporation makes no warranty, expressed or implied regarding the accuracy of this data nor assumes any responsibility for injury from the intentional or non-intentional misuse of this product.

11.2 Flea and Tick Shampoo – Opti-Neem

MATERIAL SAFETY DATA SHEET

SECTION 1: Manufacturer's Name: Cosmos Corporation
Address: P.O. Box 414, Wentzville, MO 63385
Emergency Telephone No.: 800-542-7387
Information Telephone No.: 636-327-5533
Trade Name: TropiClean "Opti Shampoo"

SECTION 2: Physical and Health Hazard Ingredients: None

SECTION 3: Physical Characteristics:
Boiling Point: N/A Specific Gravity: 1.03-1.07
Vapor Density: Approx. 0.9 Evaporation Rate: Not volatile
Solubility in Water: Complete Color: Peach
Melting/Freezing Point: N/A
Odors: Tropical fragranced liquid

SECTION 4: Fire and Explosion Hazard Data
Flash Point: None
Flammable Limits: Product is considered non-combustable
Special Fire Fighting Procedures: None Known

SECTION 5: Reactivity Data
Stability: Stable
Hazardous Decomposition: None known
Incompatibility: Strong oxidizing agents. Strong acids.
Hazardous Polymerization: will not occur
Conditions to avoid: None known when used as directed

SECTION 6: Health Hazard Data
Effects of over exposure: Possible minimal skin and eye irritation.
FIRST AID: Inhalation - Seek fresh air.
Skin - wash contact area with flowing water.
Ingestion - give two glasses of water. See physician immediately. Induce vomiting only on the advise of a physician. Never give anything by mouth to an unconscious person. Eyes: Remove contact lenses. Flush with water for 15 minutes.

SECTION 7: Occupational Protection Procedures
Respiratory Protection: not required
Ventilation: local
Protective Gloves: Standard type rubber gloves
Waste Disposal Method: Dispose of with solid waste according to Federal, State and Local Regulations.
Eye Protection: Avoid contact with eyes.

The information contained herein is based on the data available to us and is believed to be correct to the best of our ability. However, Cosmos Corporation makes no warranty, expressed or implied regarding the accuracy of this data nor assumes any responsibility for injury from the intentional or non-intentional misuse of this product.

11.3 Moisturizer – Kiwi Moisturizer

MATERIAL SAFETY DATA SHEET

SECTION 1: Manufacturer's Name: Cosmos Corporation
Address: P.O. Box 414, Wentzville, MO 63385
Emergency Telephone No.: 800-542-7387
Information Telephone No.: 636-327-5533
Trade Name: Tropiclean Kiwi Conditioner

SECTION 2: Physical and Health Hazard Ingredients: None

SECTION 3: Physical Characteristics:
Boiling Point: N/A Specific Gravity: 1.03-1.07
Vapor Density: Approx. 0.9 Evaporation Rate: Not volatile
Solubility in Water: Complete Color: Light Pink
Melting/Freezing Point: N/A Odors: Tropical Smell

SECTION 4: Fire and Explosion Hazard Data
Flash Point: None
Flammable Limits: Product is considered non-combustable
Special Fire Fighting Procedures: None Known

SECTION 5: Reactivity Data
Stability: Stable
Hazardous Decomposition: None known
Incompatibility: Strong oxidizing agents. Strong acids.
Hazardous Polymerization: will not occur
Conditions to avoid: None known when used as directed

SECTION 6: Health Hazard Data
Effects of over exposure: Possible minimal skin and eye irritation.
FIRST AID: Inhalation - Seek fresh air. If breathing is difficult, see a physician. Skin - wash contact area with flowing water. Ingestion - give two glasses of water to dilute. See Physician Immediately. Induce vomiting only on the advice of a physician. Never give anything by mouth to an unconscious person Remove contact lenses. Flush with water for 15 minutes.

SECTION 7: Occupational Protection Procedures
Respiratory Protection: not required
Ventilation: local
Protective Gloves: not required
Waste Disposal Method: Dispose of with solid waste according to Federal, State and Local Regulations.
Eye Protection: Avoid contact with eyes.

The information contained herein is based on the data available to us and is believed to be correct to the best of our ability. However, Cosmos Corporation makes no warranty, expressed or implied regarding the accuracy of this data nor assumes any responsibility for injury from the intentional or non-intentional misuse of this product.

11.4 Dissenfectant – KennelSol

Material Safety Data Sheet – KennelSol®

Alpha Tech Pet, Inc.
Your Animal Care Specialist
119 Russell Street, Suite 21
Littleton, Massachusetts 01460

MATERIAL SAFETY DATA SHEET – KennelSol®

Section 1: Product & Company Identification

Trade Name:	**KennelSol**
EPA Reg. No.	62472-1
Product Class:	Quaternary Ammonium Compound
Product Use:	Disinfectant/Sanitizer
Manufacturer:	Alpha Tech Pet, Inc. 119 Russell Street, Suite 21 Littleton, Massachusetts 01460
Telephone Numbers:	24 hr. Emergency Assistance: Alpha Tech Pet, Inc. 1-800-222-5537 or 1-978-500-3455 Product or Company Information: 1-800-222-5537 (Mon – Fri)

Section 2: Composition/Information on Ingredients

Ingredient	CAS #	Wt. %
Alkyl dimethyl benzyl ammonium chloride (C_{12-16})	68424-85-1	1.0 – 2.0
Didecyl dimethyl ammonium chloride	7173-51-5	2.0 – 3.0
Ethanol	64-17-5	0.5 – 1.0

Section 3: Hazards Identification

Emergency Overview	Clear, light blue liquid. Irritating to the eyes, skin, gastrointestinal tract, and respiratory system.

Potential Health Effects:

Skin:	Direct skin contact may produce severe irritation, which upon prolonged contact, may produce skin burns. Harmful if absorbed through the skin.
Eyes:	Based on information available for similar products, it is anticipated that direct eye contact will produce severe irritation and/or burns.
Inhalation:	Mists and vapors can irritate the throat and respiratory tract. High vapor concentrations may cause central nervous system effects. Symptoms may include headaches, dizziness, and drowsiness. Harmful if inhaled.
Ingestion:	Ingestion can cause gastrointestinal irritation, swelling of the larynx, difficulty in breathing, circulatory shock, convulsions and possibly death.
Chronic:	Ingestion of ethanol by pregnant women can cause reproductive toxicity to the fetus.

Section 4: First Aid Measures

Eyes:	Flush eyes with large amounts of running water for at least 15 minutes. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. Get immediate medical attention. If physician not available, flush for an additional 15 minutes and then transport victim to medical care.
Skin or Clothing:	Wash with large amounts of running water, and soap if available, for 15 minutes. Remove contaminated clothing and shoes. Get immediate medical attention. Wash clothing and decontaminate shoes before reuse.
Inhalation:	If symptoms are experienced, move victim to fresh air. If person is not breathing, call 911 or an ambulance, then, give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
Ingestion:	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
Note to Physician:	Possible mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, as well as oxygen and measures to support breathing manually or mechanically may be needed.

Section 5: Fire Fighting Measures

Flash Point:	None when heated to 105°C – Tag Closed Cup
Upper & Lower Flame Limits	Not determined.
Extinguishing Media:	Dry chemical, foam, carbon dioxide, water fog or any other agent suitable for surrounding fire.
Fire Fighting Equipment & Instructions:	Firefighters should wear full protective clothing including self-contained breathing apparatus. Cool fire exposed containers with spray.
Hazardous Combustion Products:	Irritating and toxic gases or fumes may be released during a fire.
Unusual Fire Explosion Hazards	Combustion products are toxic.

Section 6: Accidental Release Measures

Spill and Leak Procedures

Emergency Action:	Isolate spill or leak area immediately. Keep unauthorized personnel away. Stay upwind. Keep out of low areas where vapors may accumulate. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area).
Spill Cleanup:	Ventilate closed spaces before entering. All equipment used when handling the product must be grounded. Floor will be slippery. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Large Spills:	Dike far ahead of liquid spill for later disposal. Pump into containers for disposal.

Section 7: Handling & Storage

Handling Procedures:	Avoid contact with skin and eyes. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Wash thoroughly after work using soap and water.
Storage Procedures:	Keep the container tightly closed and in a cool, well-ventilated place. Keep from freezing. Do not handle or store near an open flame, heat or other sources of ignition. Prevent electrostatic charge buildup by using common bonding and grounding techniques.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:	In processes where mists or vapors may be generated, proper ventilation must be provided in accordance with good ventilation practices.

Personal Protective Equipment:

Eyes/Face:	Wear chemical goggles. Use a face shield if splashing is possible.
Skin:	Use impervious gloves (rubber or neoprene) when needed. Wear suitable protective clothing.
Respiratory:	If exposure limits are exceeded or if irritation is experienced, a NIOSH/MSNA approved respirator or an organic/vapor removing cartridge respirator protection device should be worn. Ventilation and other forms of engineering controls are often the preferred means for controlling chemical exposures. Respiratory protection may be needed for non-routine or emergency situations.
General:	Eye wash fountain and emergency showers are recommended.

The following ingredients have established exposure guidelines:

Ingredient	Exposure Guideline	Guideline Value
Ethanol 64-17-5	ACGIH TLV (2005), OSHA PEL & NIOSH REL	1000 ppm (TWA)
	Alberta, British Columbia, Manitoba, New Brunswick, Northwest Territories, (Canada)	1000 ppm (TWA)
	Ontario, Quebec (Canada)	1000 ppm (TWAEV)
	Saskatchewan (Canada)	1000 ppm (TWA), 1250 ppm (STEL)
	Yukon (Canada)	1000 ppm (TWA), 1000 ppm (STEL)
	Mexico	1000 ppm (TWA)

	ACGIH TLV (2005), OSHA PEL & NIOSH REL	1000 ppm (TWA)

All TWAs are for an 8-hour period and all STELs are for 15 minutes unless specifically noted as being for another time period.

Section 9: Physical & Chemical Properties

Flash Point: None when heated to 105°C – Tag Closed Cup
Specific Gravity: 1.006 (8.35lbs/gal)
Percent Volatiles: Not determined.
Vapor Pressure: Not determined.
VOC Content ~ 1
Vapor Density: Not determined.
Viscosity: 1.4489 mm^2/s (cSt) @ 22°C
Evaporation Rate: Not determined.
Pour Point: Not determined.
pH : 7.0 – 8.0
Appearance and Odor: Clear, light blue liquid with wintergreen fragrance.

Section 10: Stability & Reactivity

Chemical Stability: Material is stable.
Conditions to Avoid: Keep away from heat and strong oxidizing agents.
Incompatibilities: Strong oxidizing agents (may result in fire.), reducing agents.
Hazardous Decomposition: Carbon monoxide, carbon dioxide and toxic hydrogen chloride vapors.
Hazardous Polymerization: Will not occur.

Section 11: Toxicological Information

Carcinogenicity No Carcinogenicity data available for this product.
Acute Oral LD50 >1000 mg/kg for male and female rats.
Acute Dermal LD50 >2000 mg/kg for male and female rabbits.
Primary Skin Possibly irritating or corrosive.
Primary Eye Possibly irritating or corrosive.

Chemicals Ingredients Listed as Potential or Known Carcinogens

Ingredient	OSHA	NTP	IARC
No ingredients listed in this section.			

Section 12: Ecological Information

Ecotoxicity No data available for this product but it is considered toxic to fish.

Section 13: Disposal Considerations

Disposal Instructions

This substance, when discarded or disposed of, is a characteristic hazardous waste according to Federal regulation (40 CFR 261) and is assigned the EPA Hazardous Waste Number of D001. The discarding or disposal of this material must be done at a properly permitted facility in accordance with the regulations of 40 CFR 262, 263, 264, and 268. Additionally, the discarding or disposal of this material may be further regulated by state, regional, or local regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate.

The transportation, storage, treatment and disposal of this waste material must be conducted in compliance with all applicable Federal, state, and local regulations.

Section 14: Transport Information

DOT Hazard Class Non-Hazardous, not regulated.
DOT Proper Shipping Name Refer to bill of lading or container label for DOT or other transportation hazard classification, if any.

Section 15: Regulatory Information

TSCA Status

While all ingredients are listed on the TSCA Chemical Inventory, this product is regulated as a pesticide under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and not subject to the TSCA Inventory rules for FIFRA uses.

Other Chemical Inventories

All components of this product are listed on the following inventories: Canada (DSL), China, and Philippines. One or more ingredients are not listed on the following inventories: Australia, European Union, Japan and Korea.

CERCL/SARA

SARA Title III, Sections 311/312 – This act requires reporting under the Community Right-to-Know provisions due to the inclusion of the following components of this material in one or more of the five hazard categories listed in the 40 CFR 370:
Classification of this product: Immediate, Fire

SARA Title 313 – This act requires submission of annual reports of releases of the following components of this material if the threshold reporting quantities, as listed in 40 CFR 372, are met or exceeded:

Chemical Name	CAS No.	Maximum Concentration	Comment
No ingredients listed in this section.			

Reportable Quantities/Threshold Planning Quantities: CERCLA requires notification of the National Response Center (Telephone 1-800-424-8802) in the event of a release of quantities of the following hazardous materials contained in this product, if the release is equal to or greater than the Reportable Quantities (RQs). SARA 302/304 requires emergency planning, including agency notification, for possible release of the following components of this material, based upon the Threshold Planning Quantities (TPQs) and/or release of Reportable Quantities.

Chemical Name	Reportable Quantity (RQ)	Threshold Planning Quantity (TPQ)
No ingredients listed in this section.		

State & Provincial Right to Know & Selected Regulatory Lists

The following ingredients appear on various state right to know lists and/or California's Proposition 65 List

Chemical Name	State List
Benzyl Chloride (trace < 100 ppm)	AZ, CA, CAP65C, CT, IL, MA, MN, NJ, PA, RI
Ethanol	AZ, CA, CAP65R (ingestion only), CT, ID, MA, MN, NJ, PA, RI

AZ – Arizona Ambient Air Quality Guidelines
CT – Connecticut Hazardous Air Pollutants
CA – California Director's List of Hazardous Substances
CA65C – California Prop 65 Carcinogen
CA65R – California Prop 65 Reproductive Toxin
ID – Idaho Non-carcinogen Toxic Air Pollutants
IL – Illinois Toxic Air Contaminant - Carcinogenic
MA – Massachusetts Right to Know List
MN – Minnesota Hazardous Substances List
NJ – New Jersey Right to Know List
PA – Pennsylvania Right to Know List
RI – Rhode Island Hazardous Substances List

WHMIS Classification: E, D2B. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: April, 2010
Previous Issue Date: None
Changes from Previous Issue Date: New MSDS

Hazard Ratings	HMIS (II)	NFPA
Health	3	3
Flammability	0	0
Reactivity	0	0
PPE	X	

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